

FIG. 1

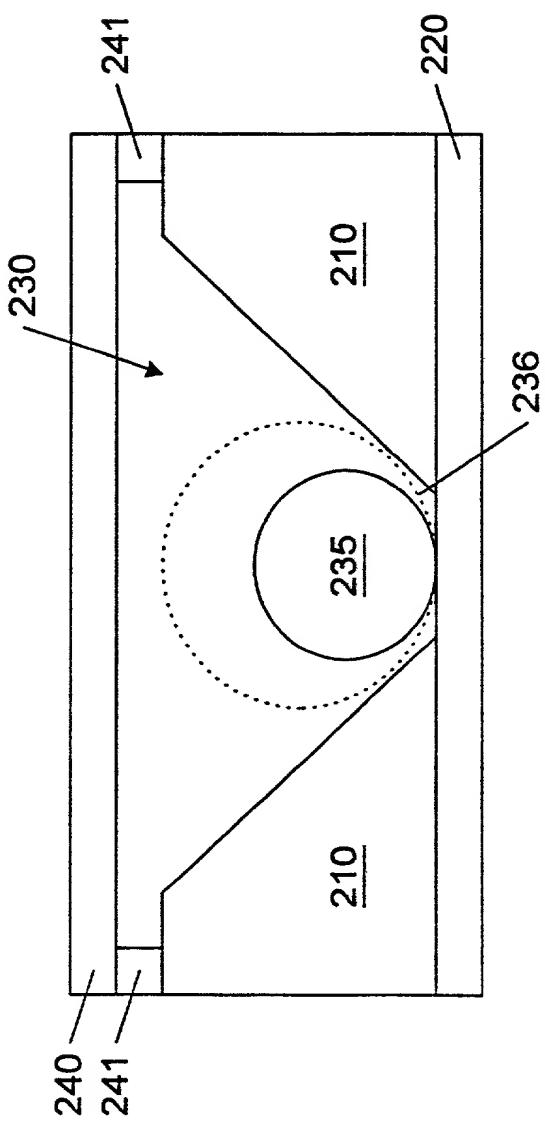


FIG. 2

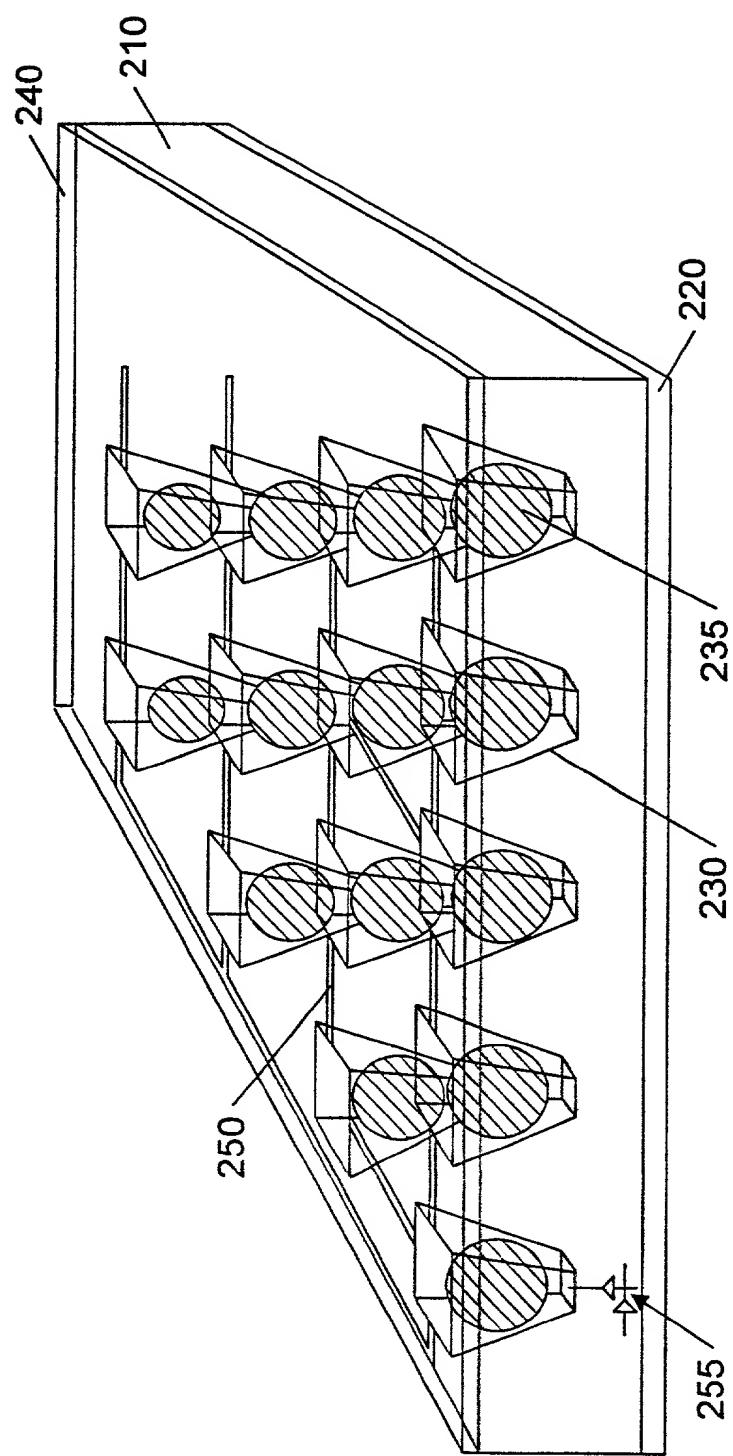


FIG. 3

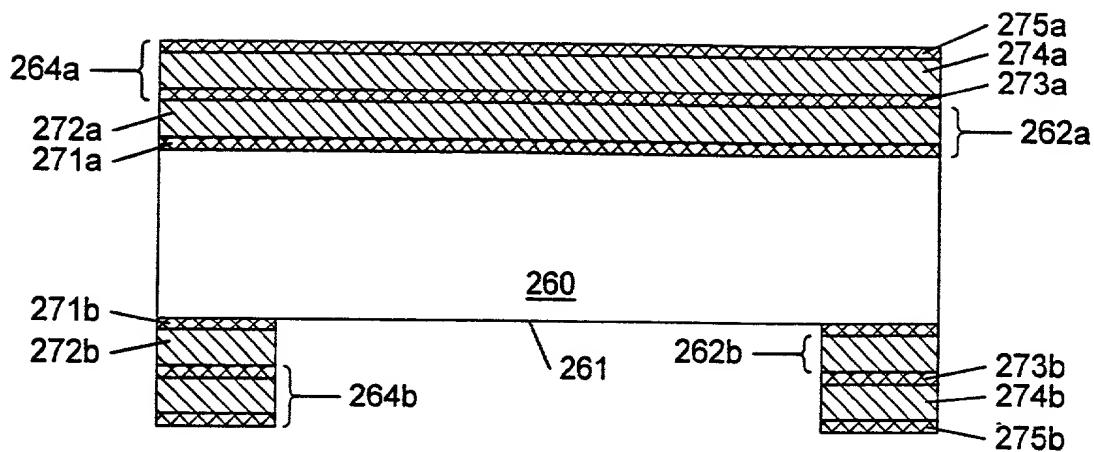


FIG. 4A

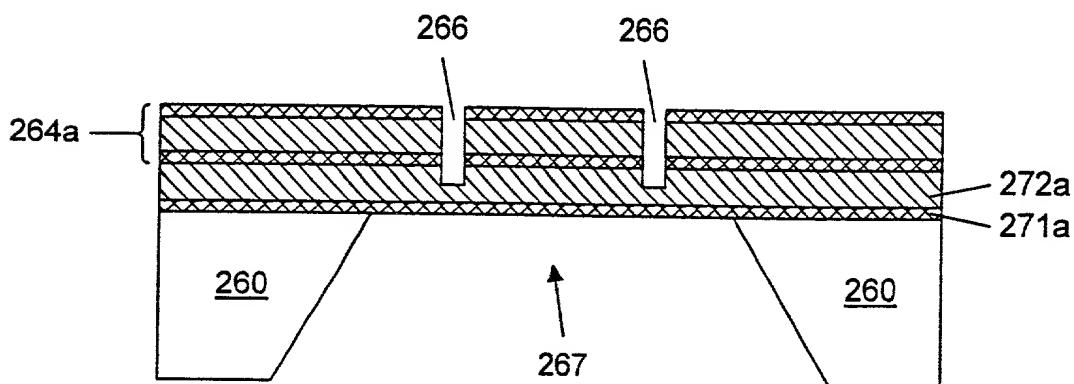


FIG. 4B

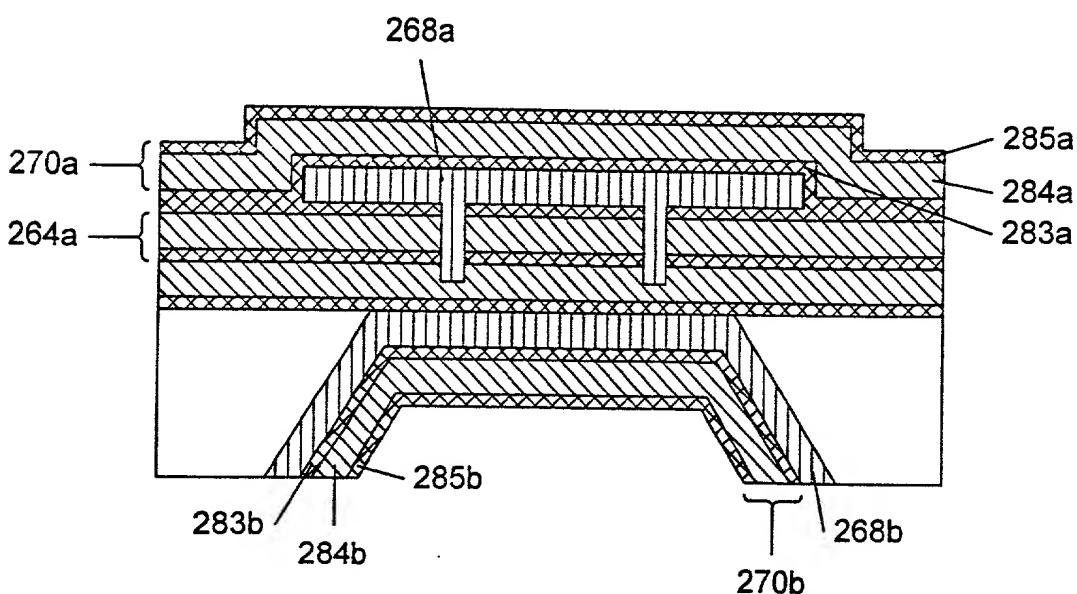


FIG. 4C

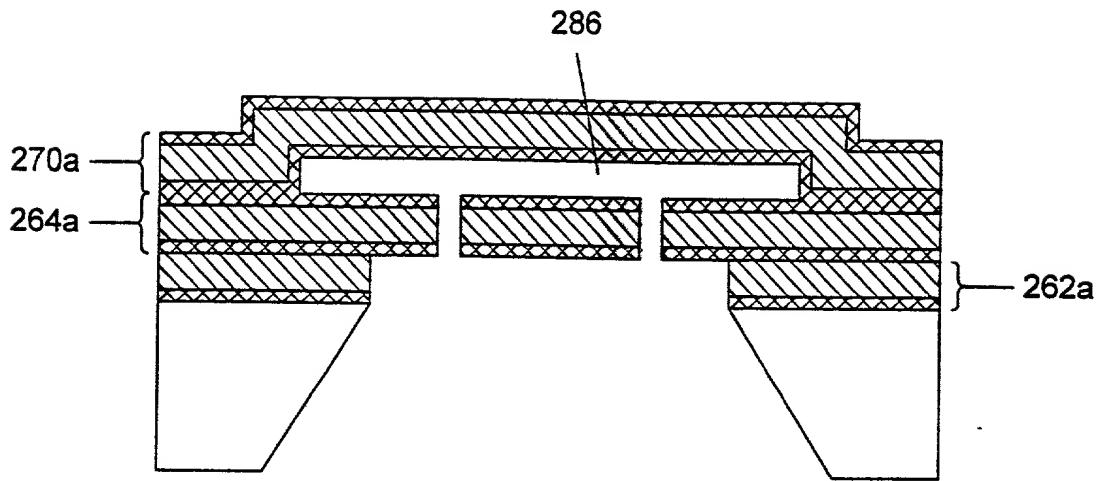


FIG. 4D

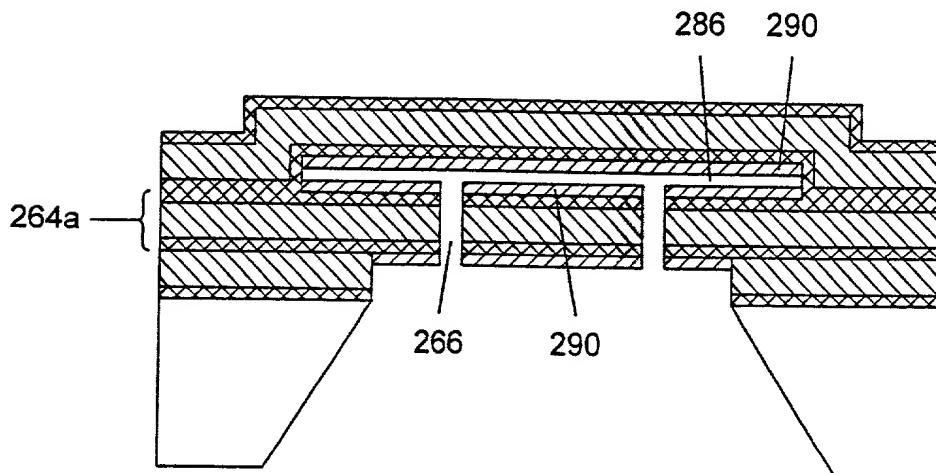


FIG. 4E

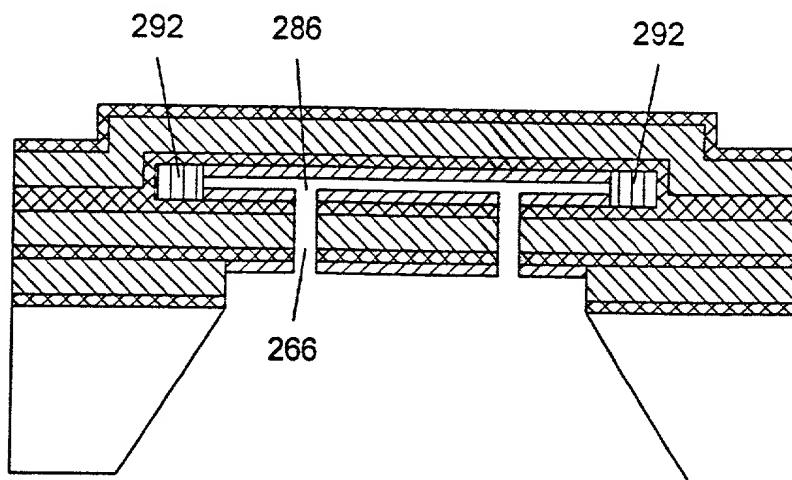


FIG. 4F

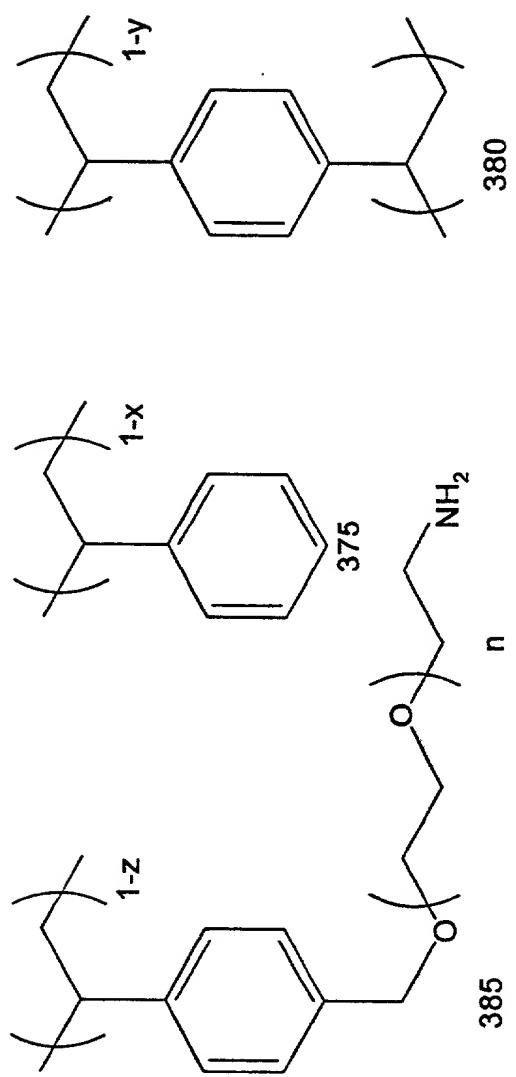


FIG. 5

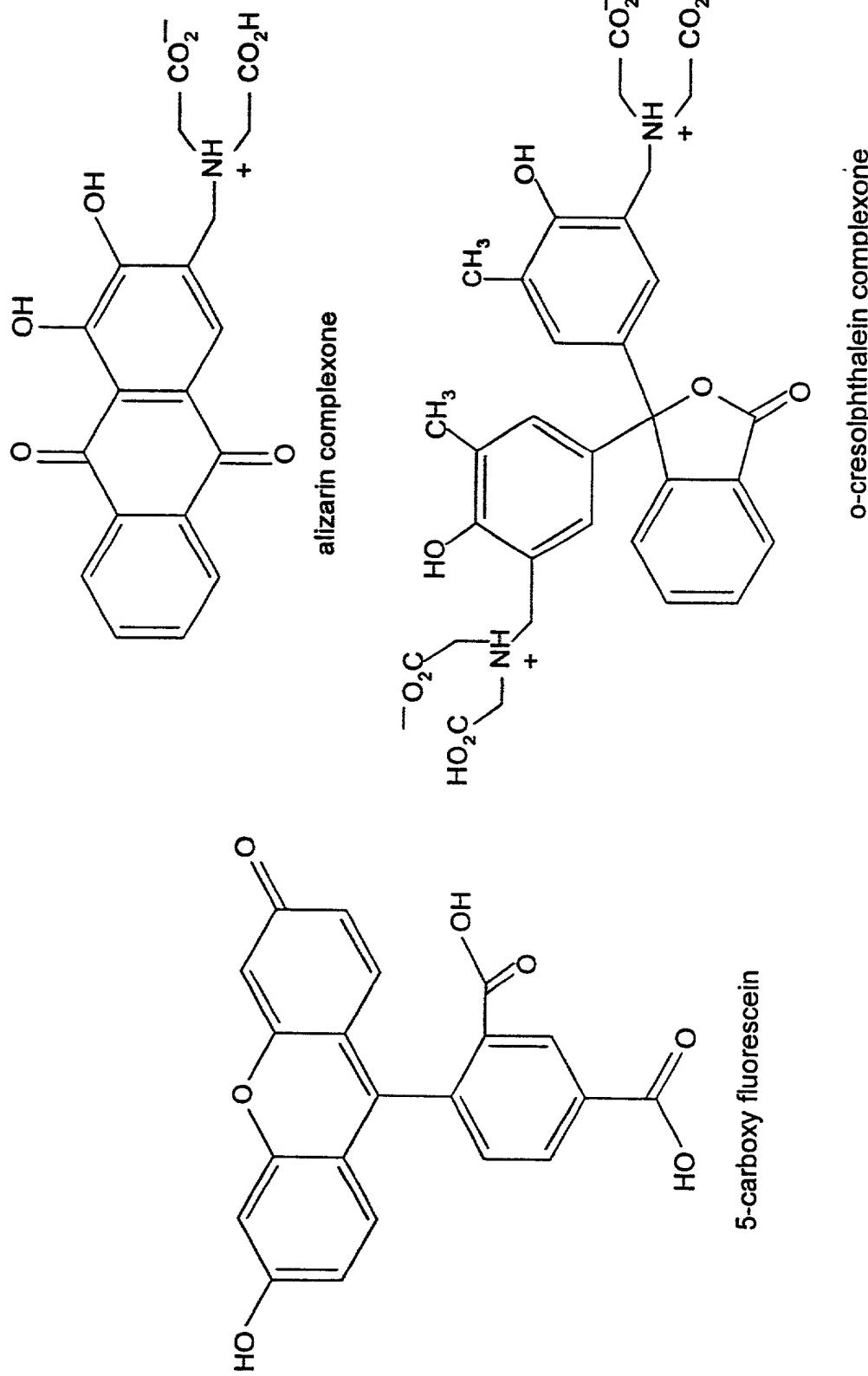


FIG. 6

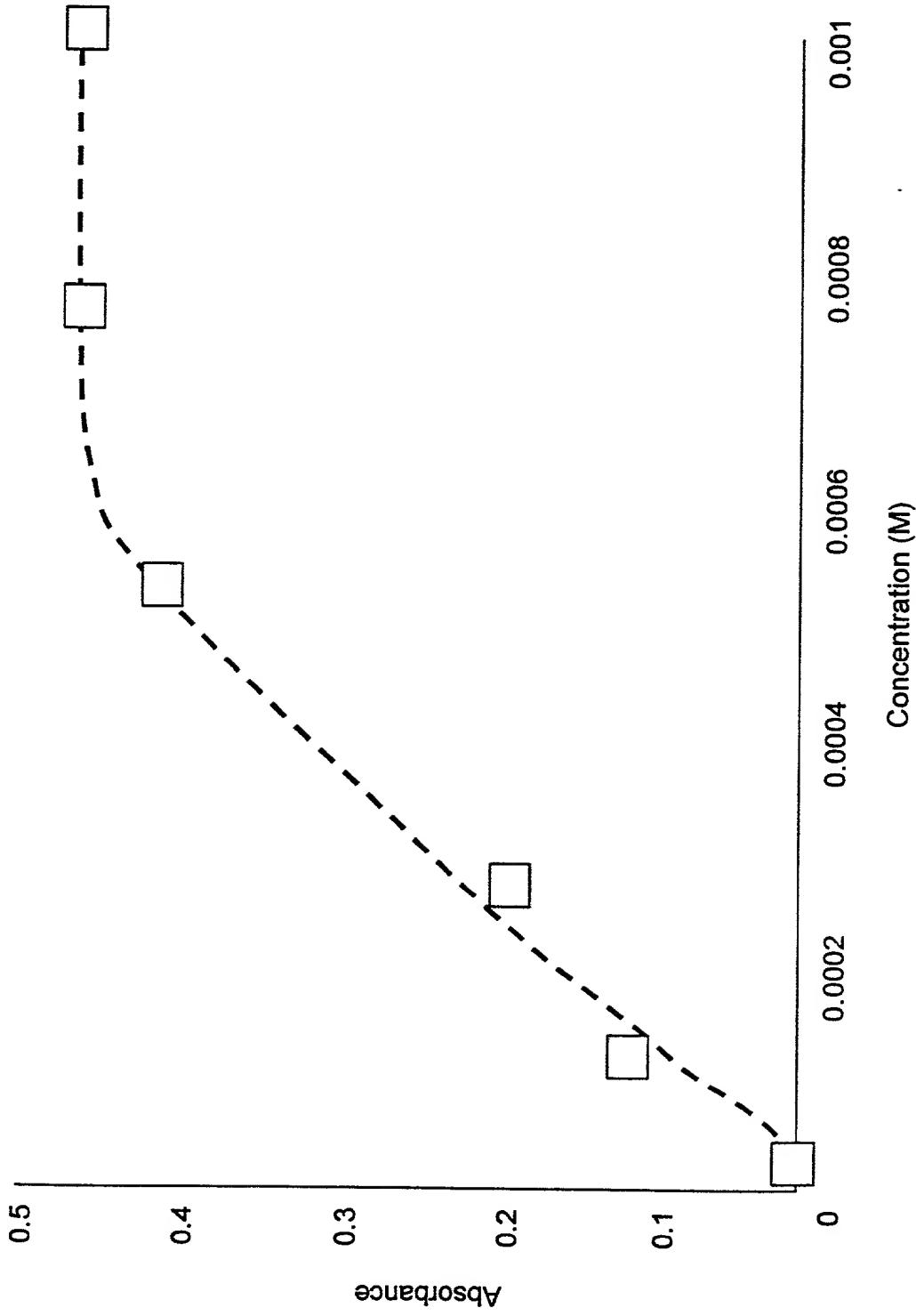


FIG. 7

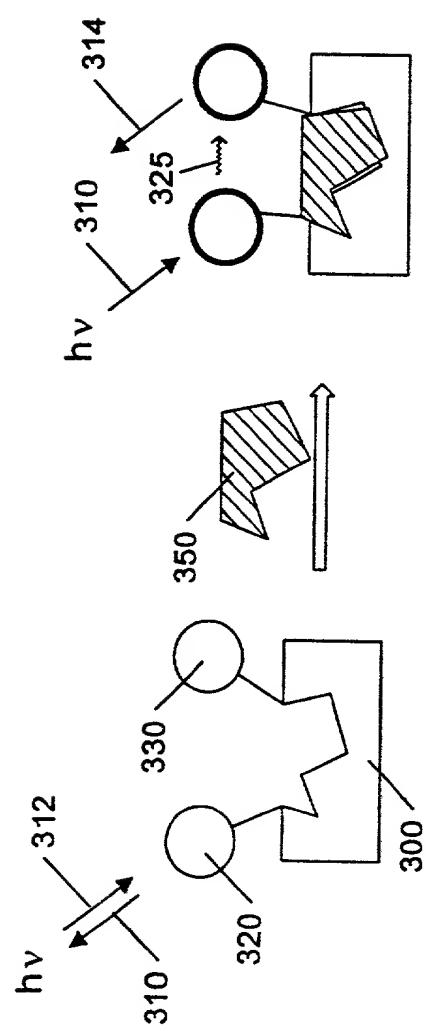


FIG. 8

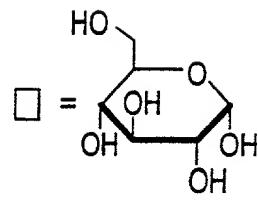
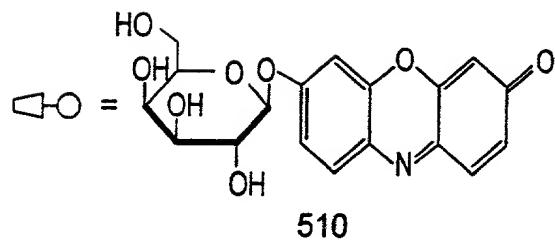
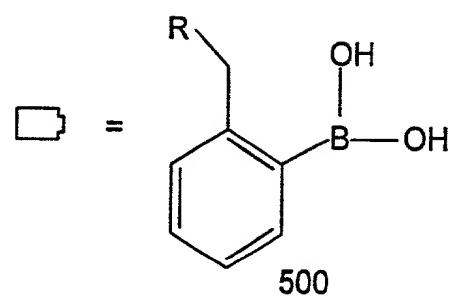
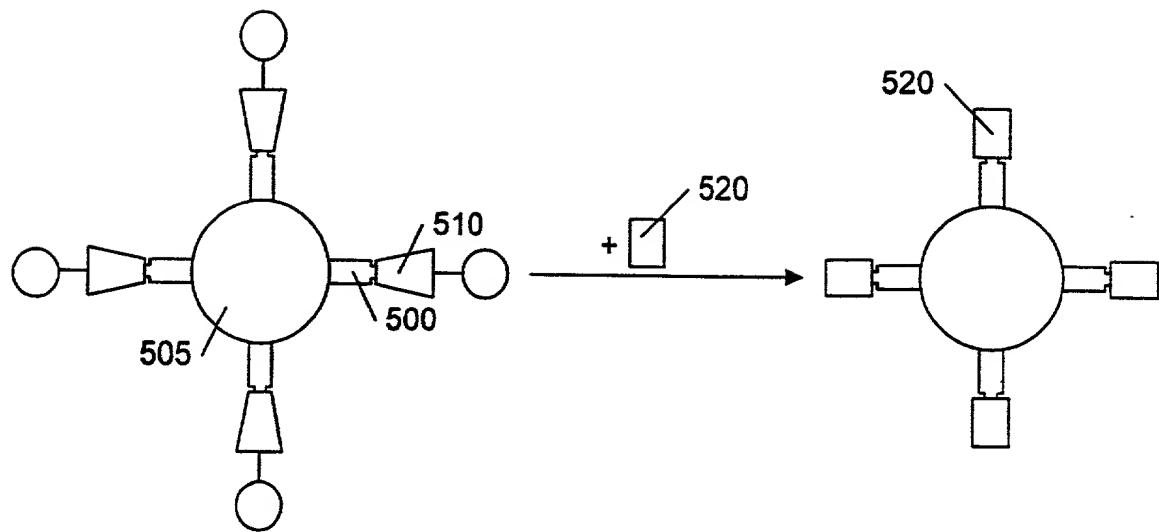
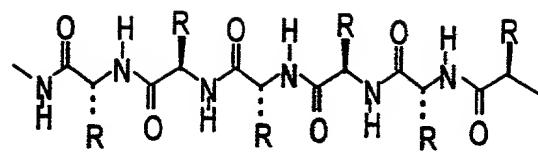
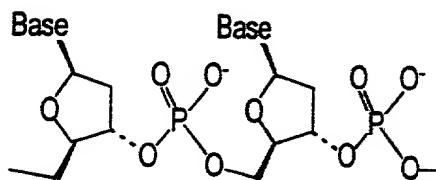


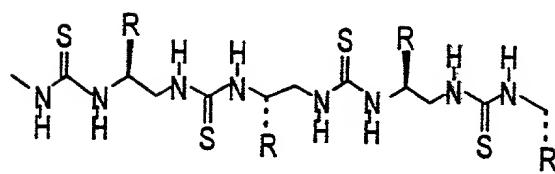
FIG. 9



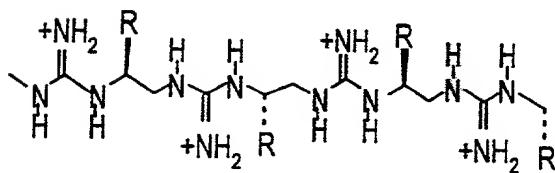
Peptides



Nucleotides



Polythioureas



Polyguanidiniums

FIG. 10

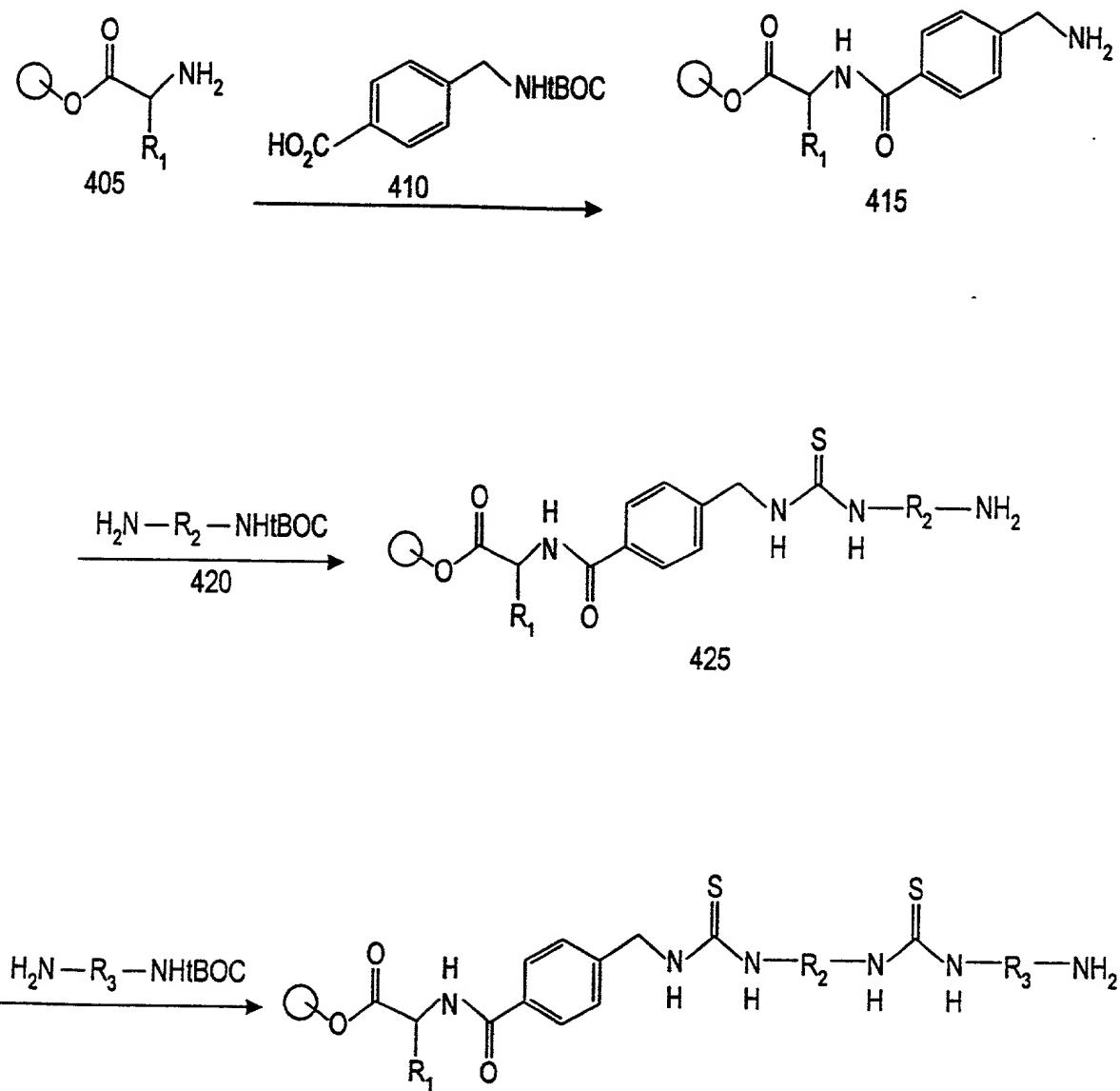


FIG. 11

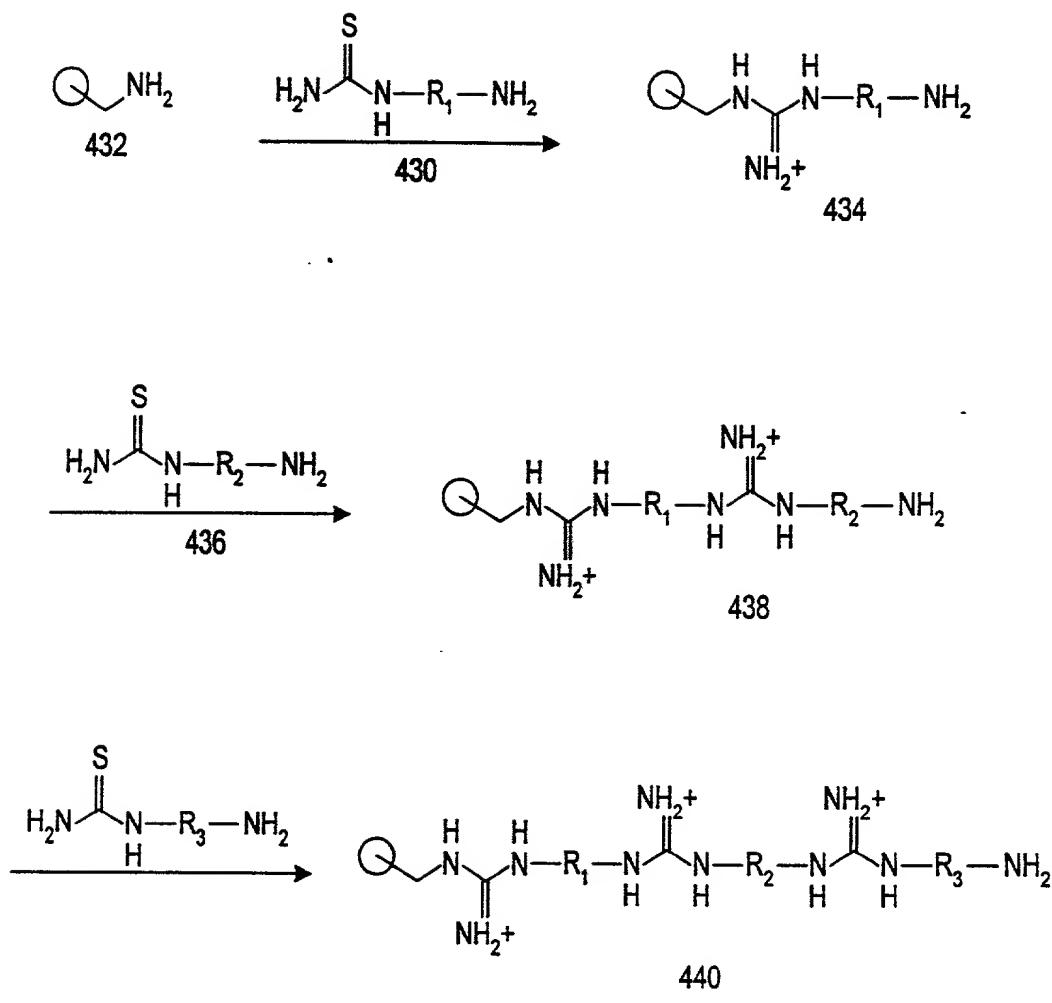


FIG. 12

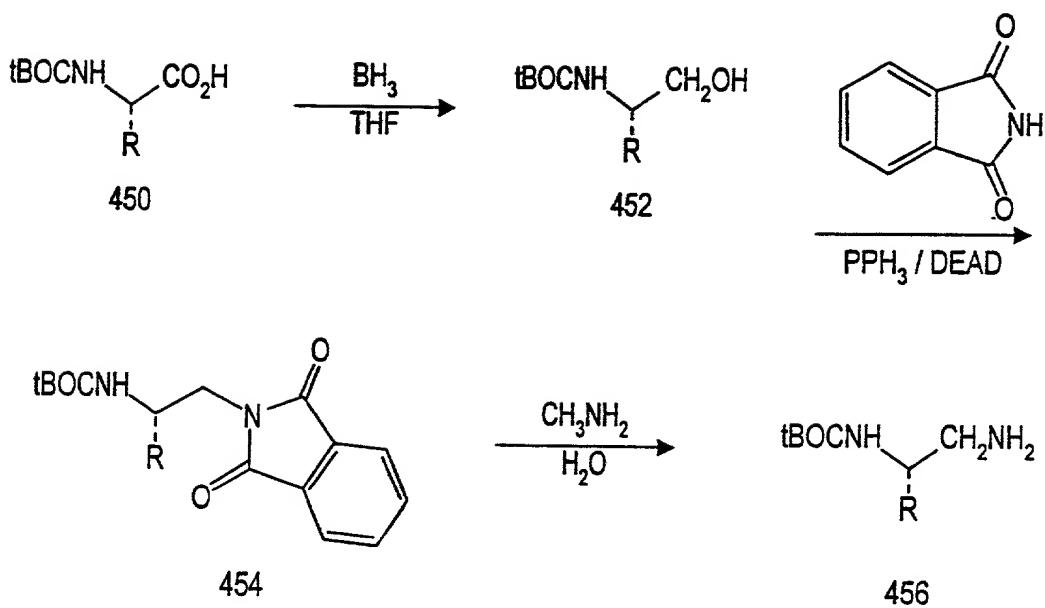


FIG. 13

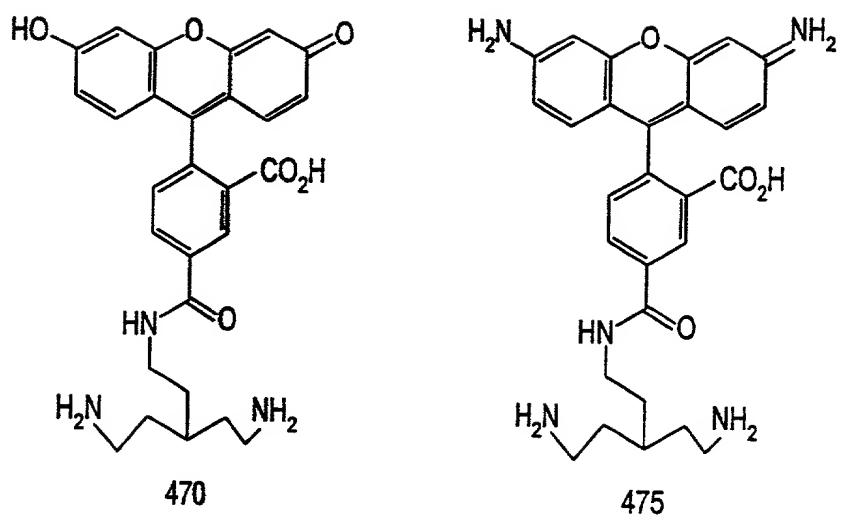


FIG. 14

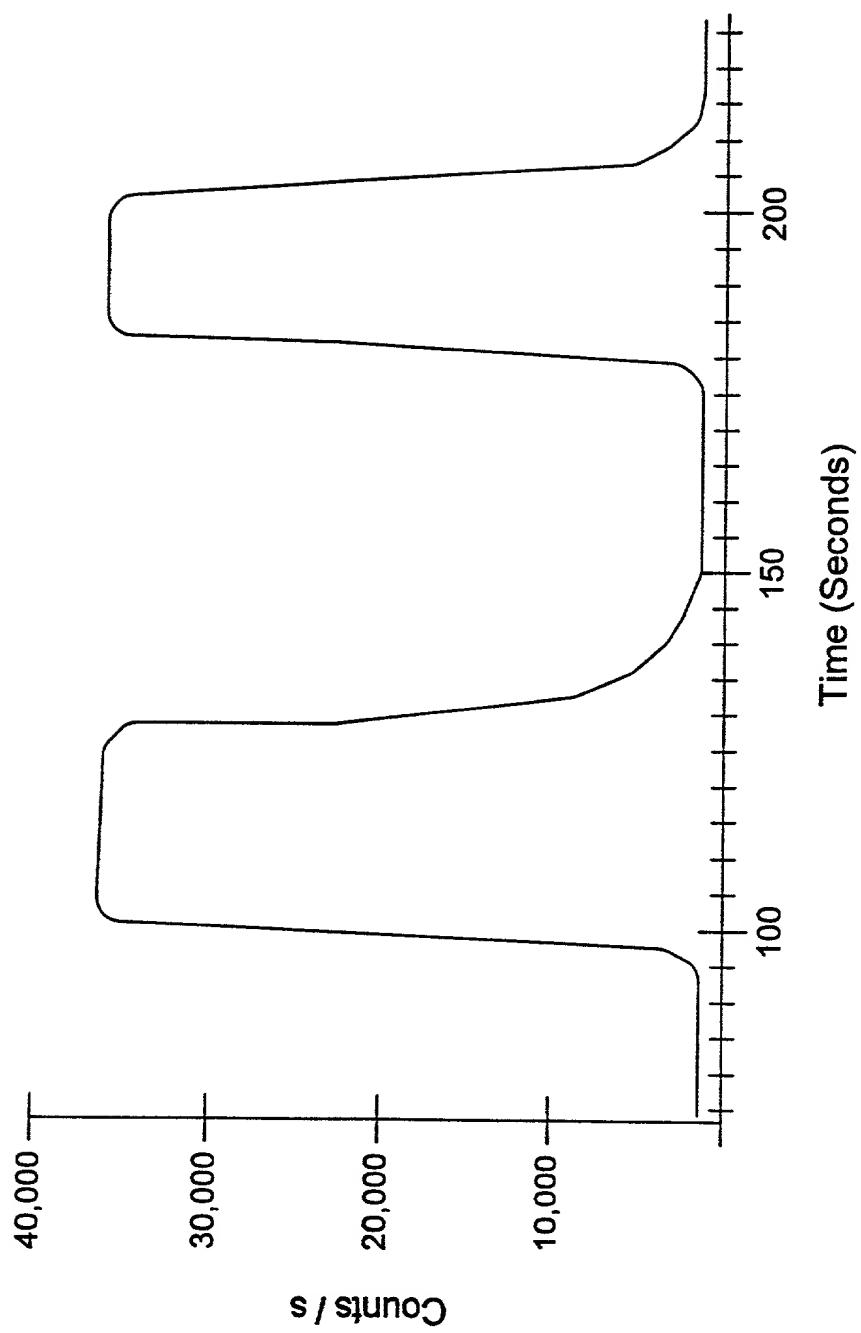


FIG. 15

RESIN:		Blank	Alizarin	$\alpha$ -Cresol-phthalein	Fluorescein	Alizarin- $\text{Ce}^{3+}$ complex
pH	Ion	R G B	R G B	R G B	R G B	R G B
2	none	R G B	R G B	R G B	R G B	R G B
2	$\text{Ca}^{2+}$	R G B	R G B	R G B	R G B	R G B
7	none	R G B	R G B	R G B	R G B	R G B
7	$\text{Ca}^{2+}$	R G B	R G B	R G B	R G B	R G B
7	$\text{F}^-$	R G B	R G B	R G B	R G B	R G B
12	none	R G B	R G B	R G B	R G B	R G B
12	$\text{Ca}^{2+}$	R G B	R G B	R G B	R G B	R G B
12	$\text{F}^-$	R G B	R G B	R G B	R G B	R G B

FIG. 16

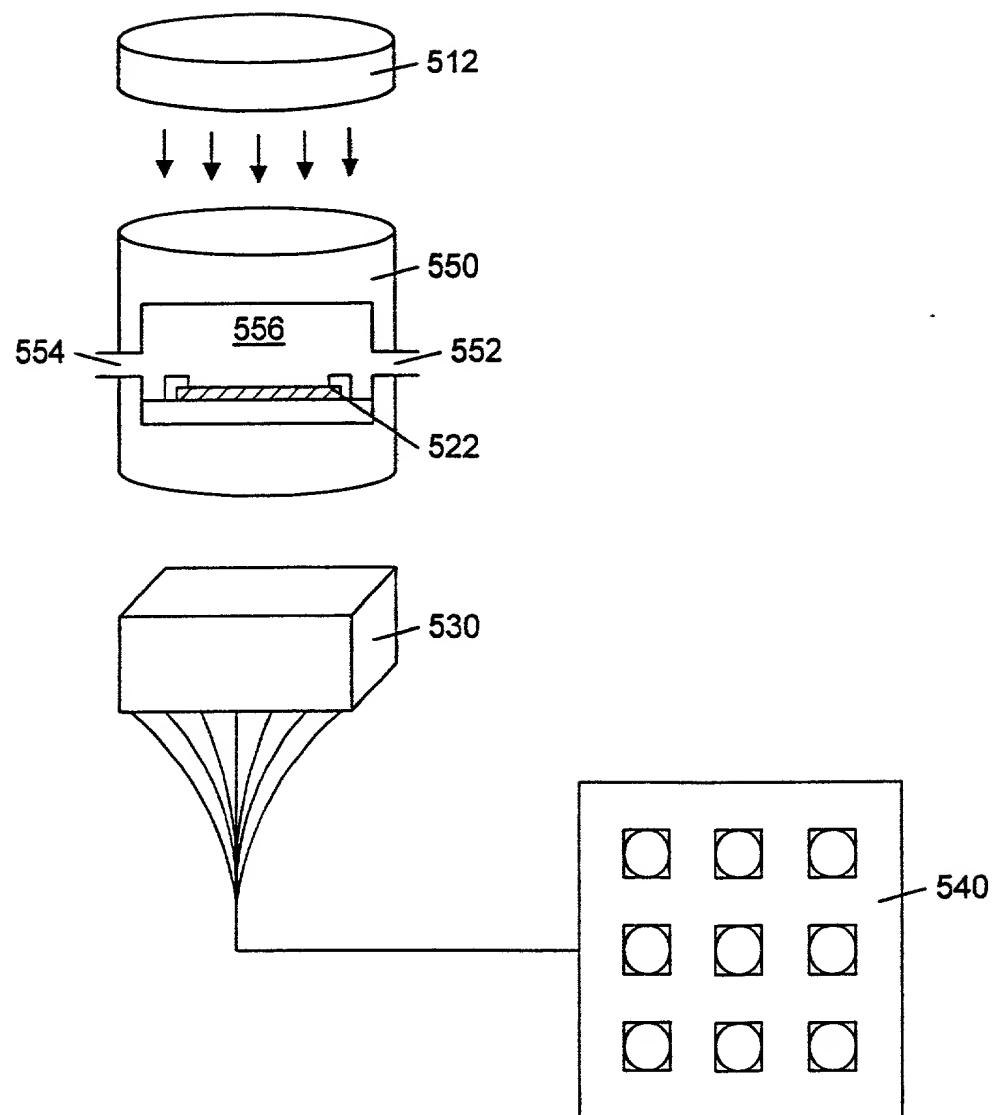


FIG. 17

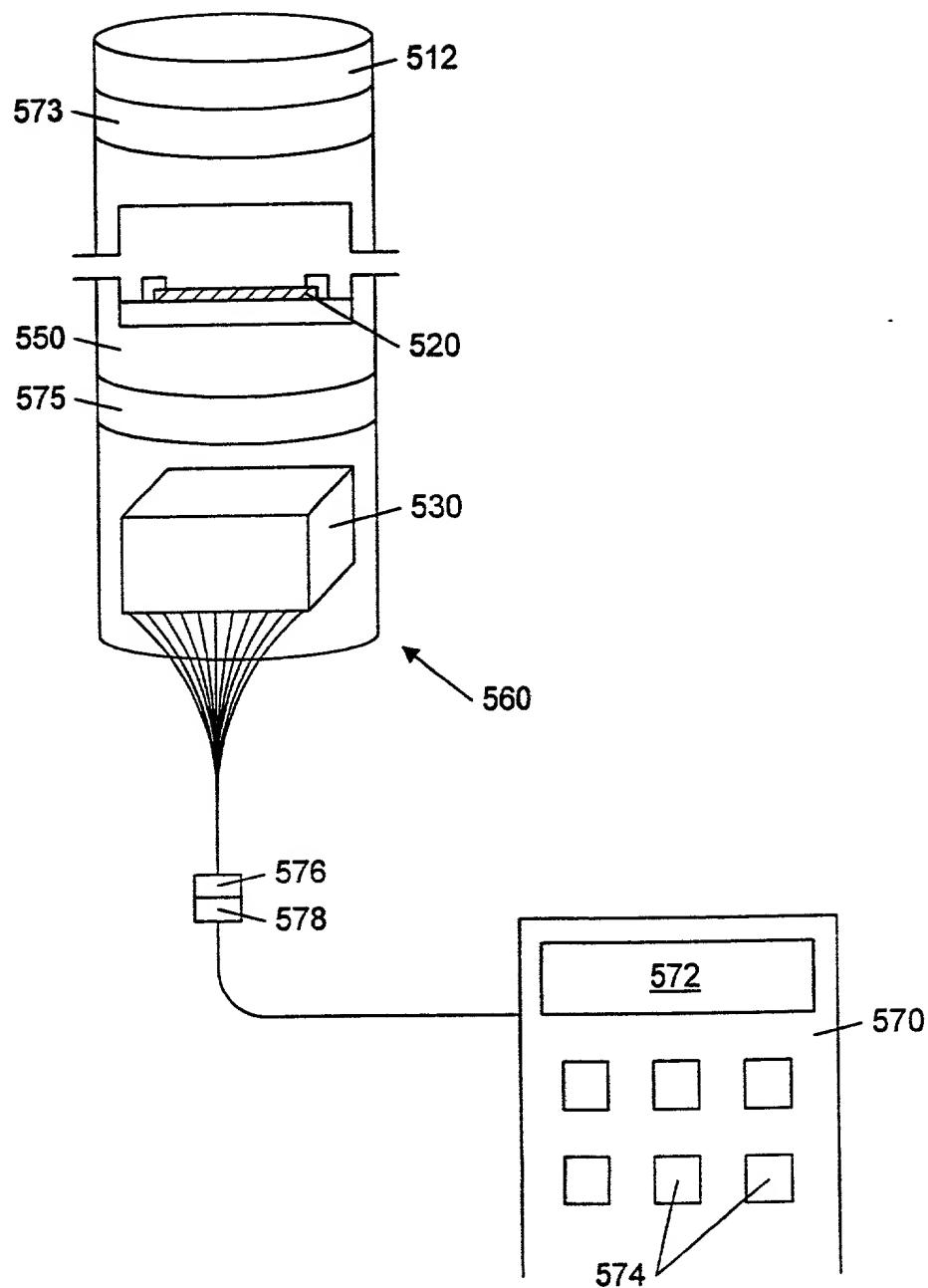


FIG. 18

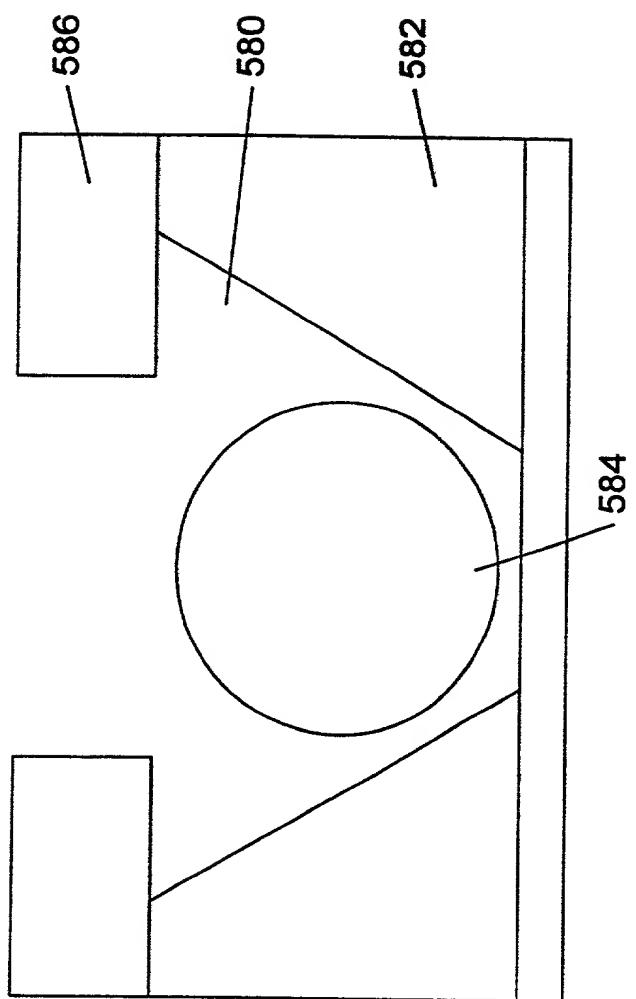


FIG. 19

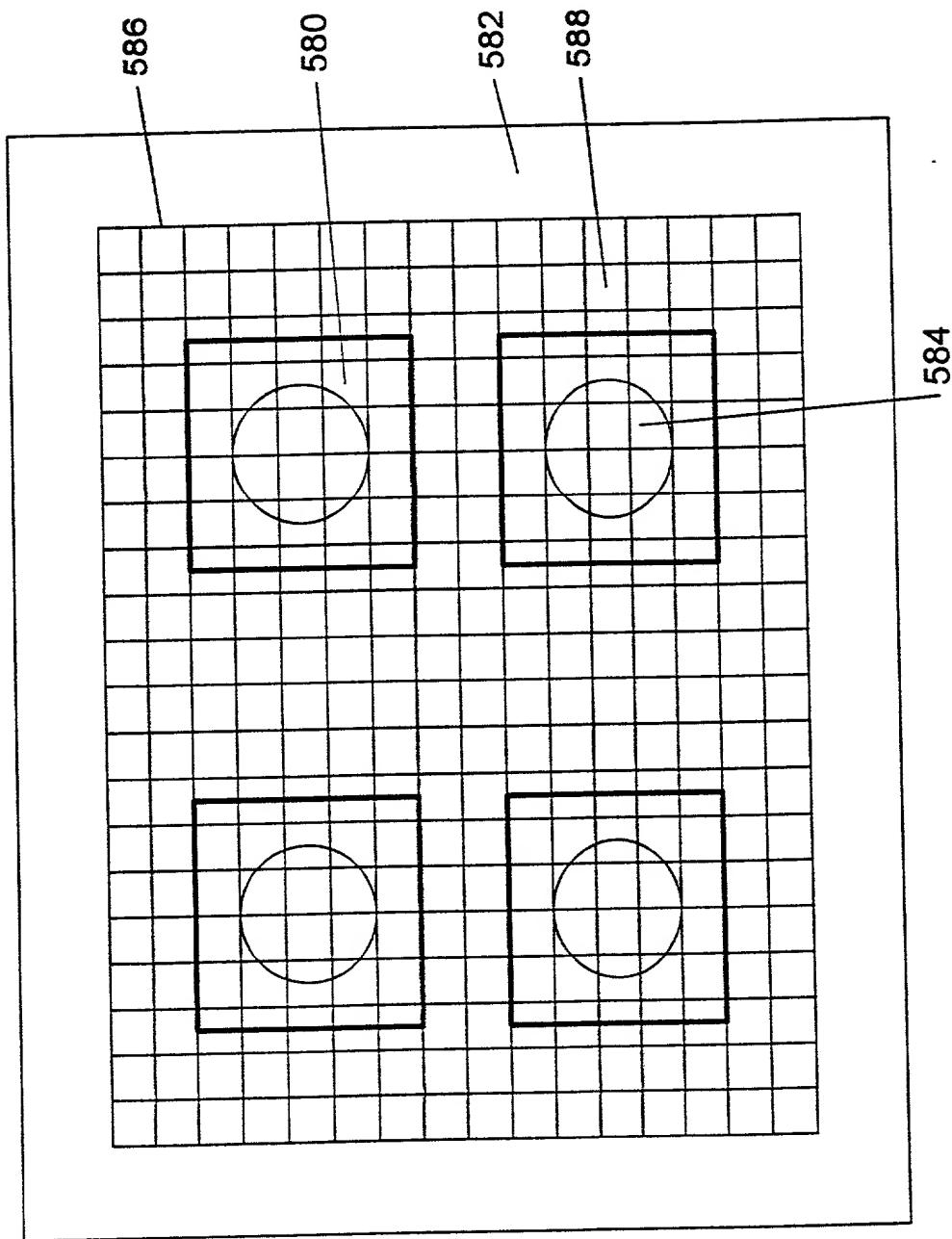


FIG. 20

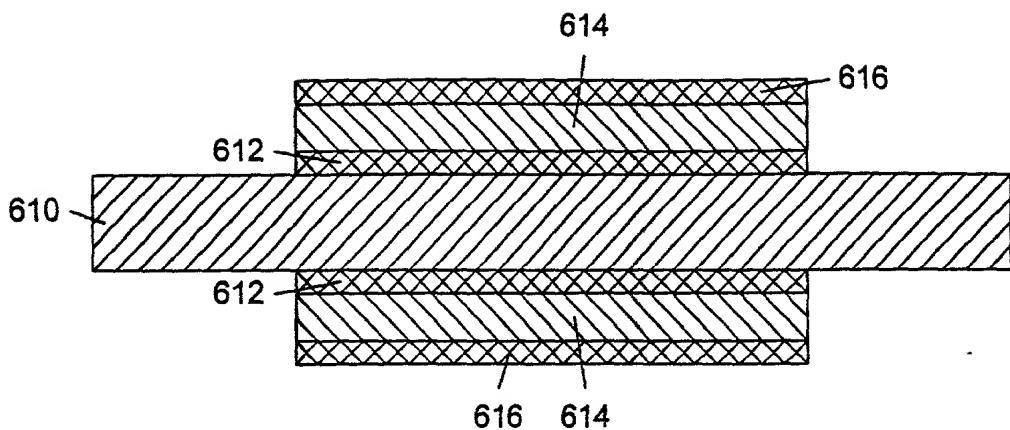


FIG. 21A

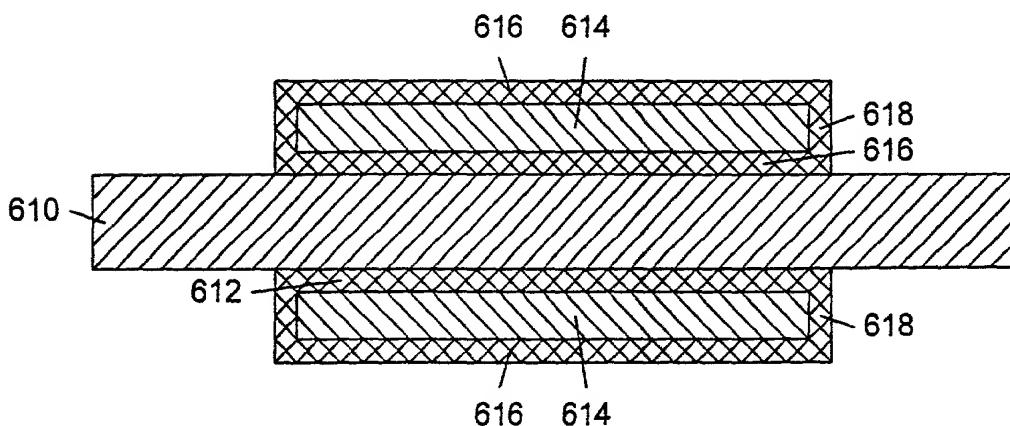


FIG. 21B

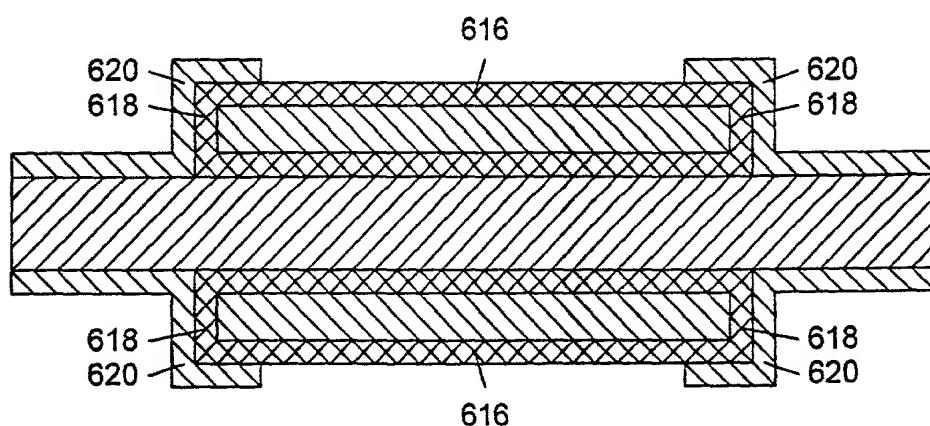


FIG. 21C

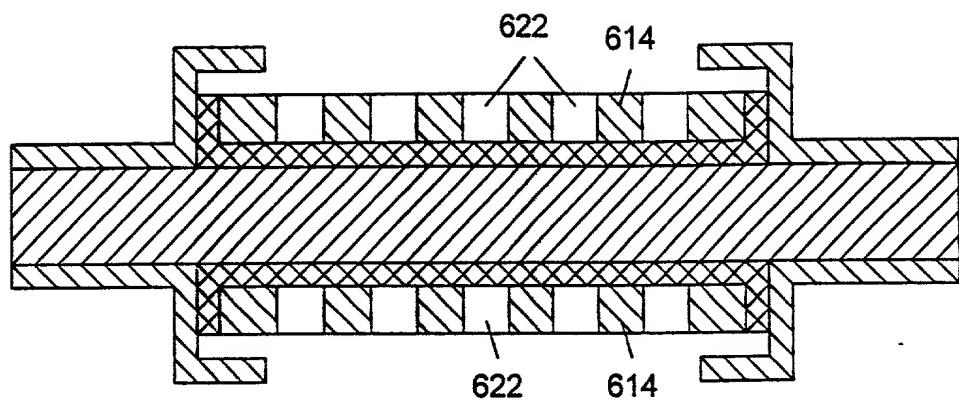


FIG. 21D

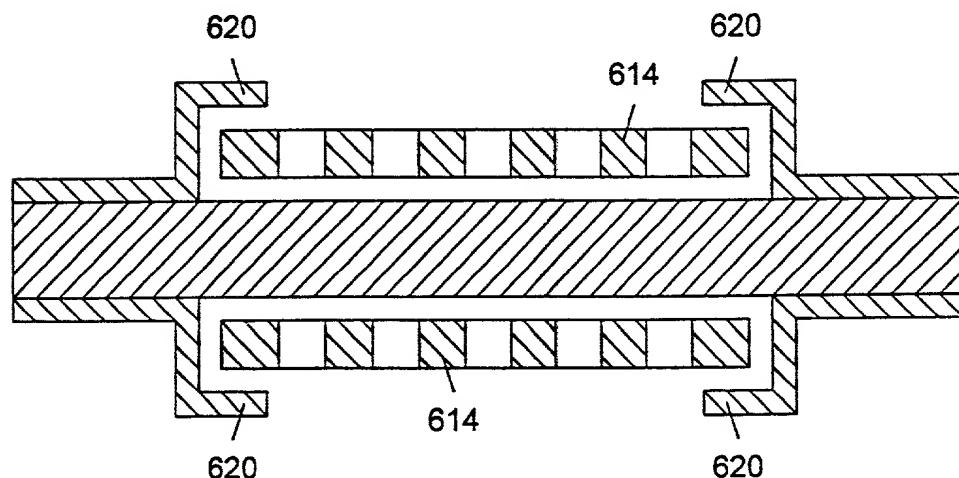


FIG. 21E

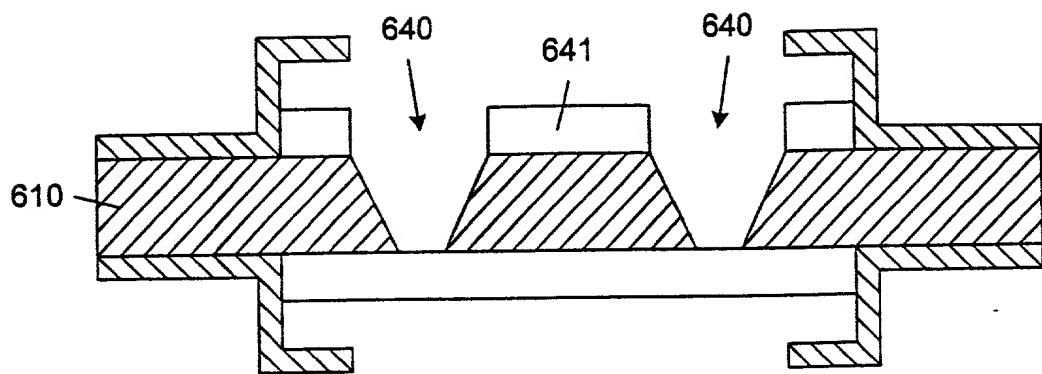


FIG. 21F

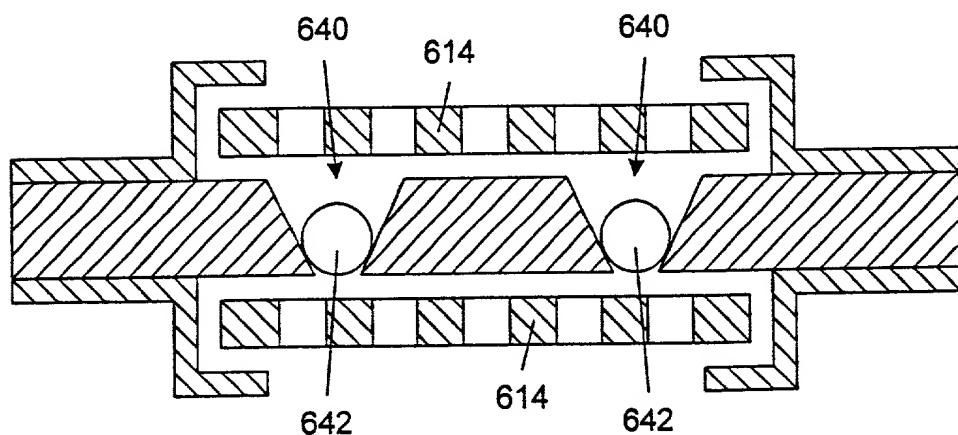


FIG. 21G

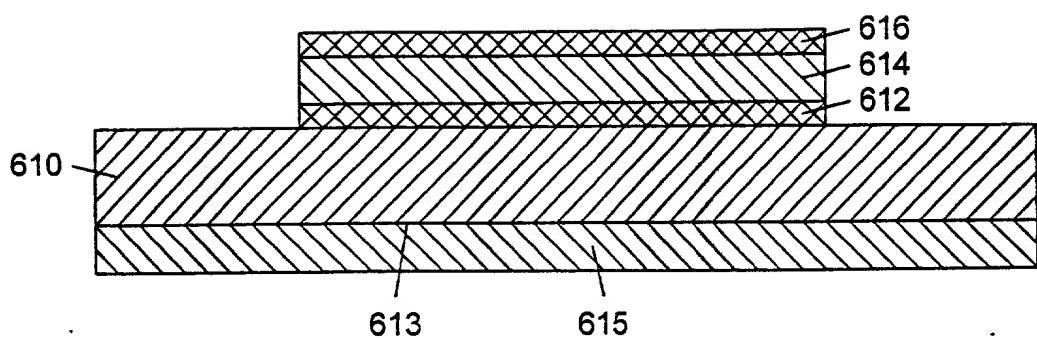


FIG. 22A

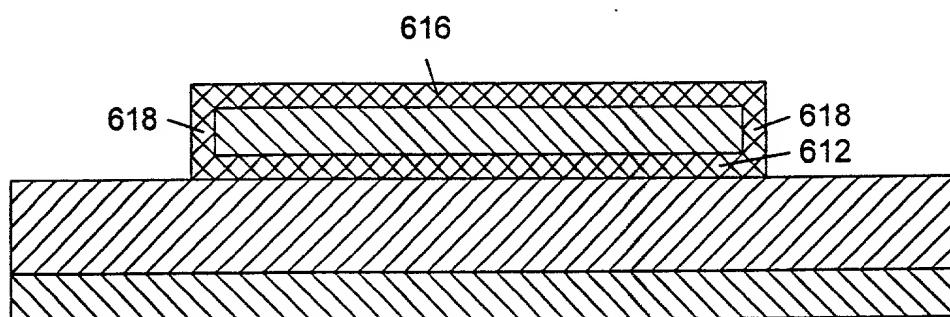


FIG. 22B

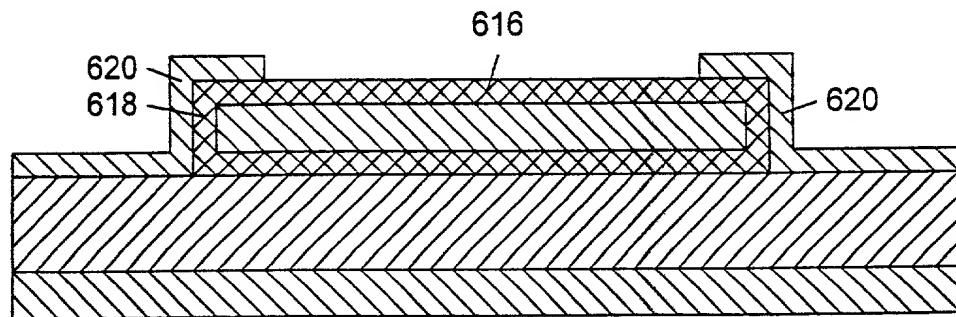


FIG. 22C

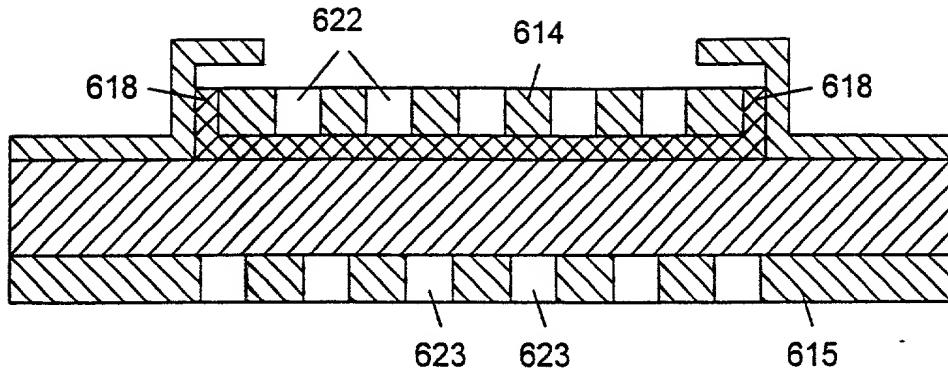


FIG. 22D

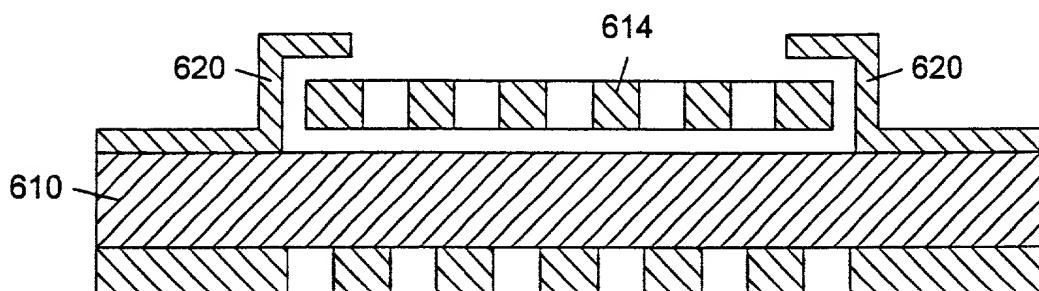


FIG. 22E

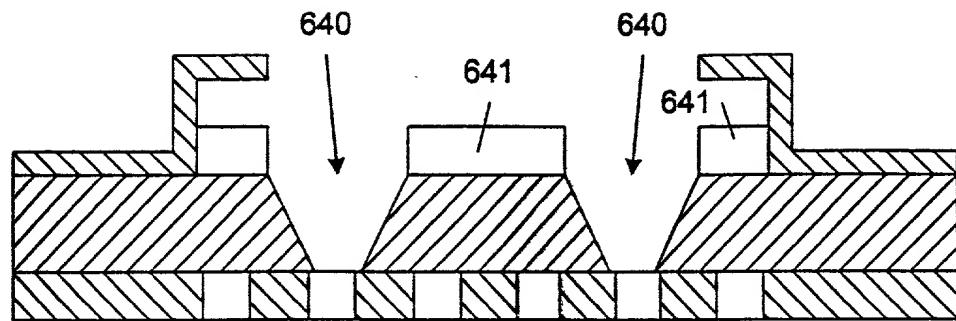


FIG. 22F

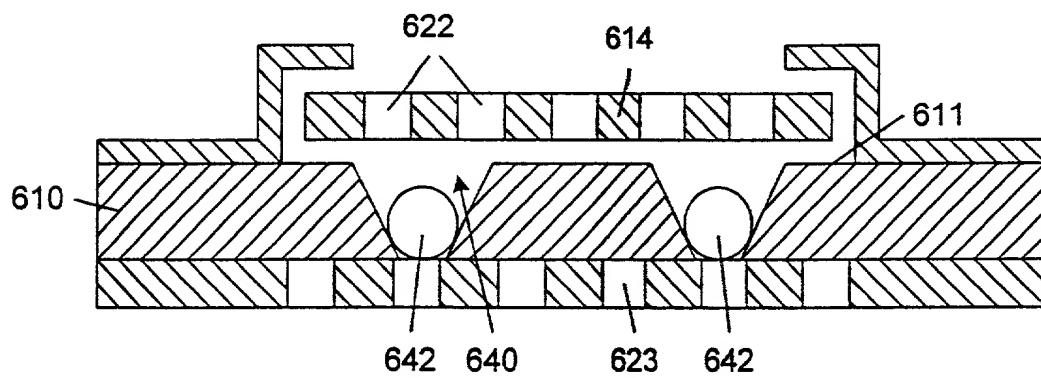


FIG. 22G

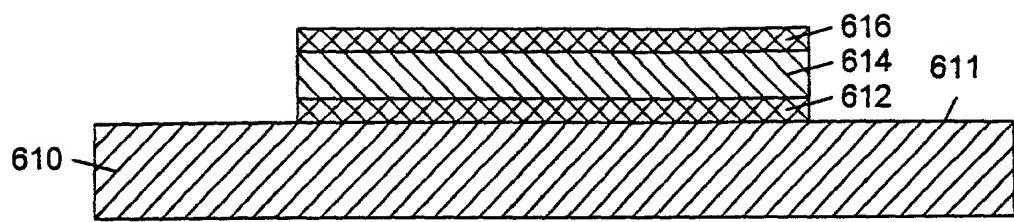


FIG. 23A

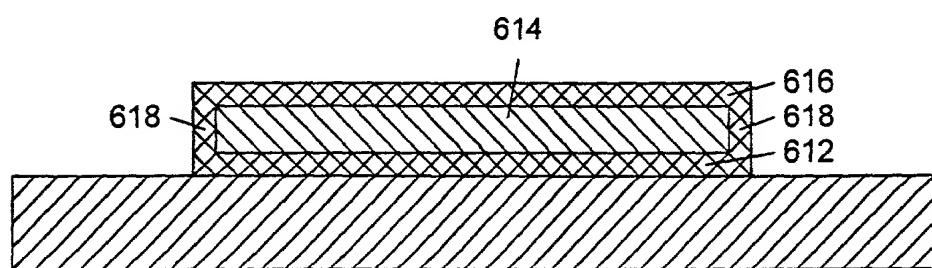


FIG. 23B

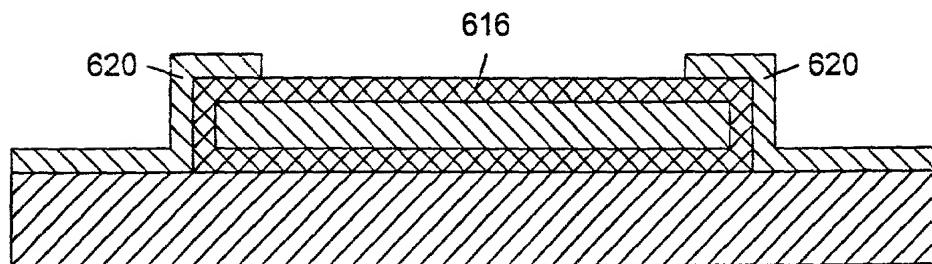


FIG. 23C

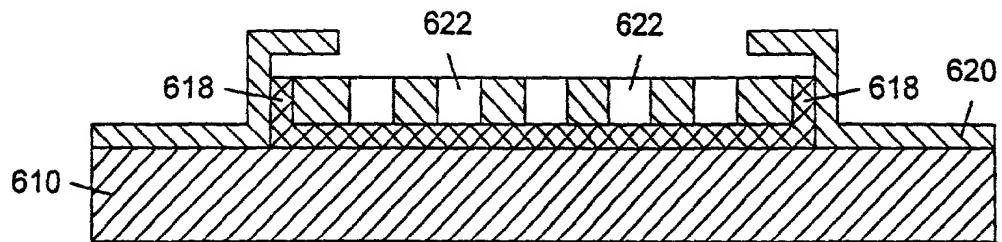


FIG. 23D

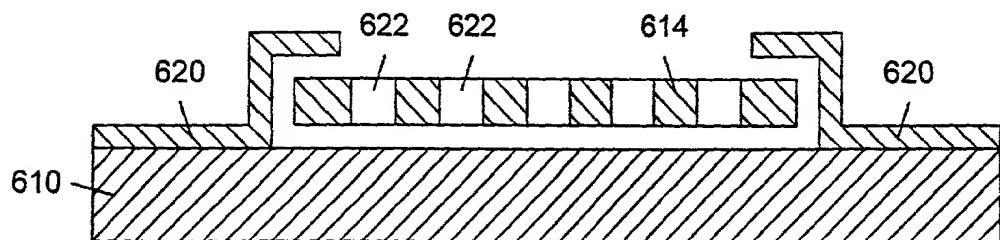


FIG. 23E

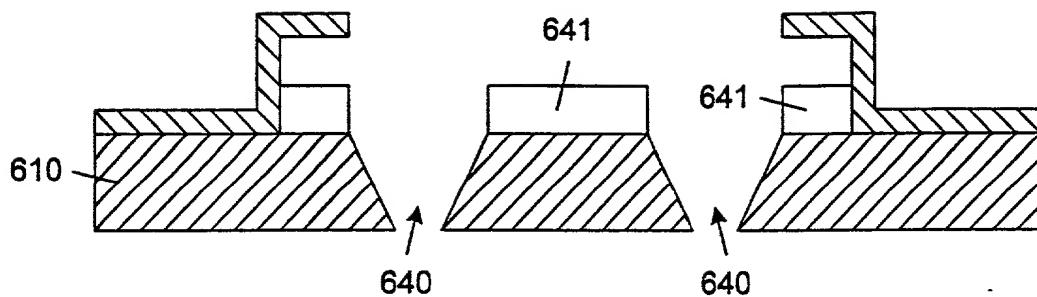


FIG. 23F

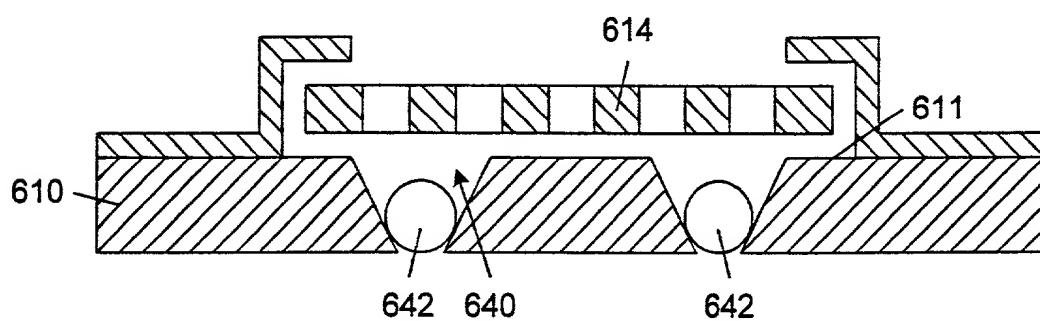


FIG. 23G

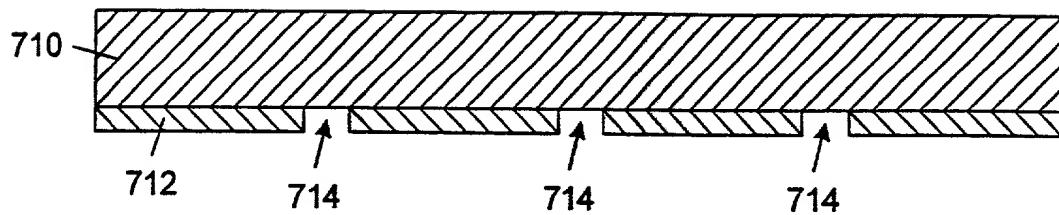


FIG. 24A

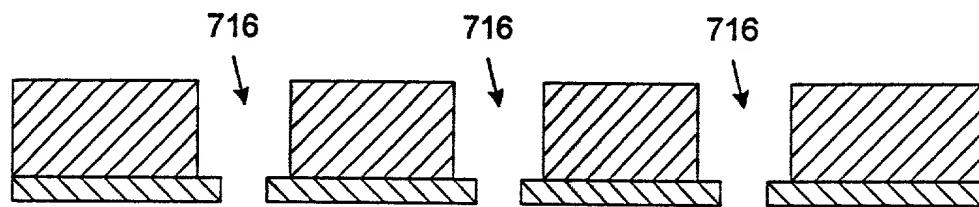


FIG. 24B

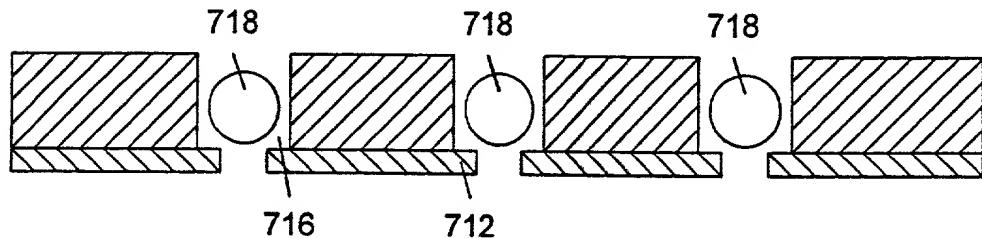


FIG. 24C

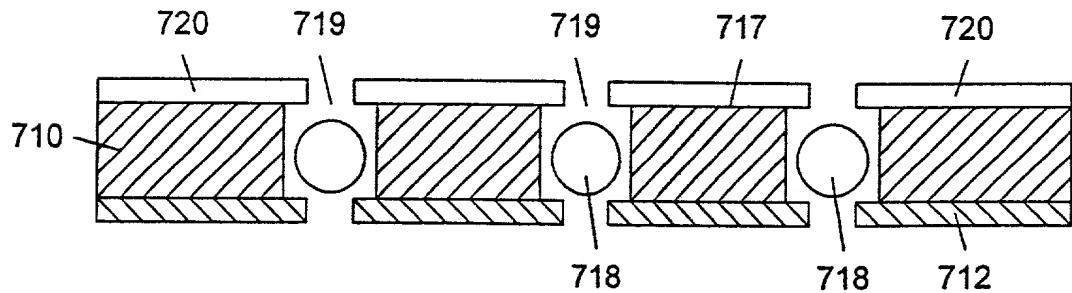


FIG. 24D

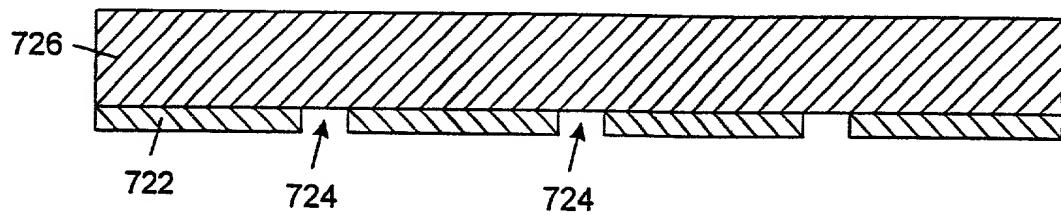


FIG. 25A

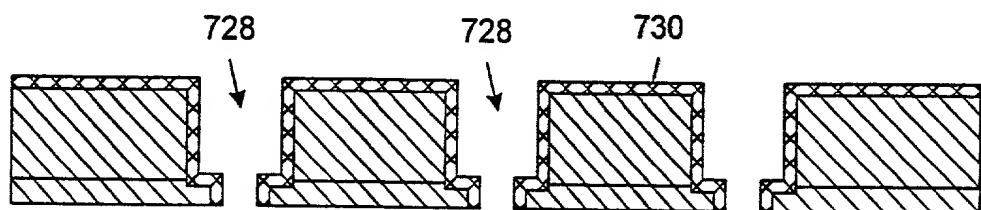


FIG. 25B

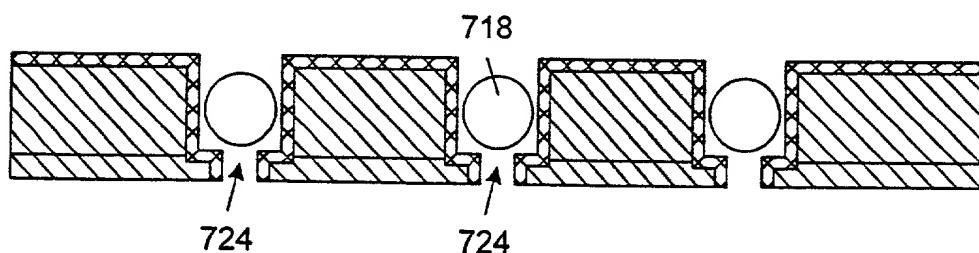


FIG. 25C

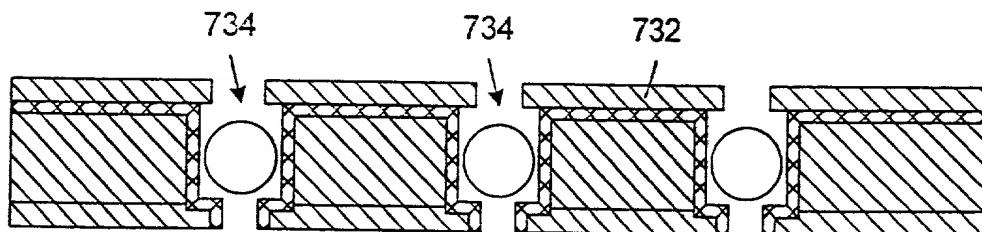
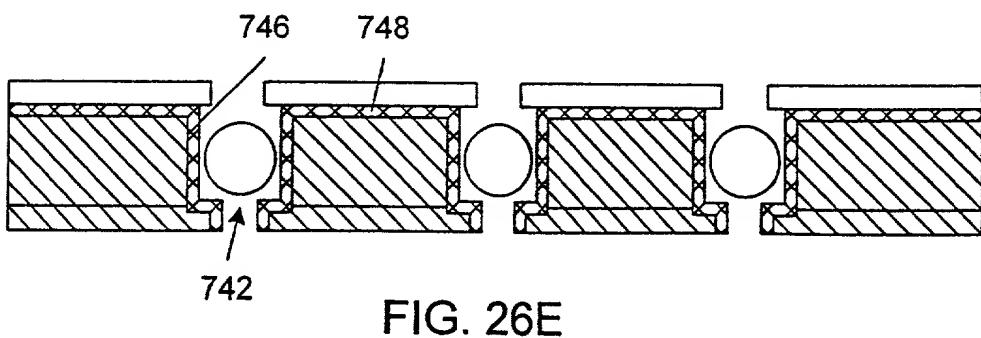
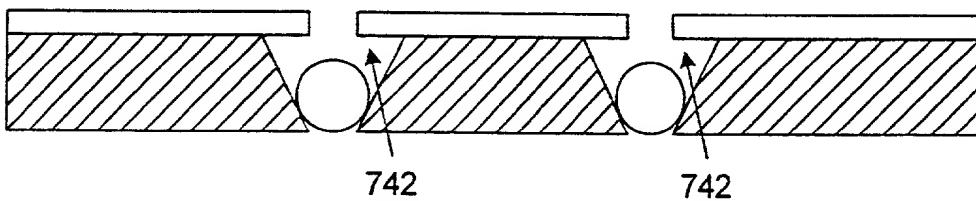
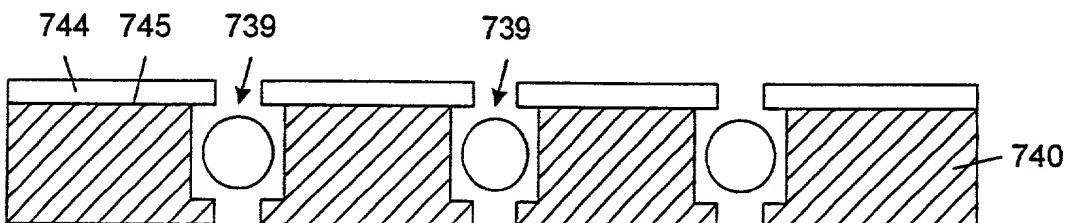
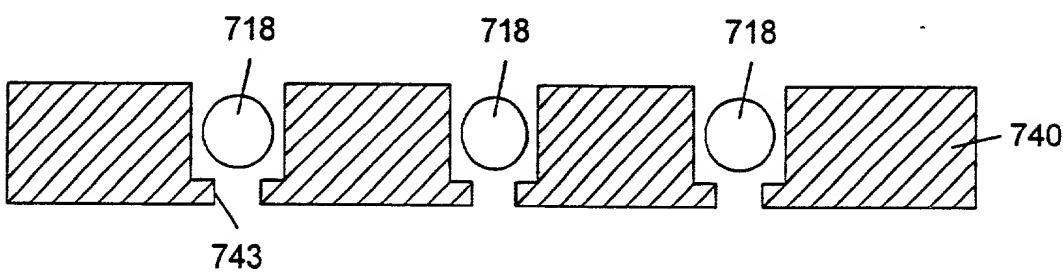
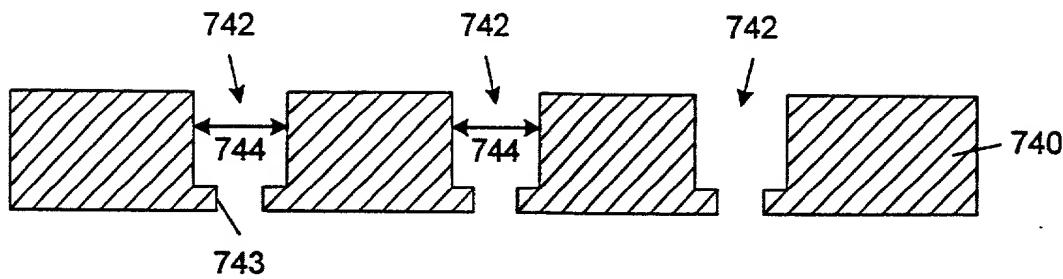


FIG. 25D



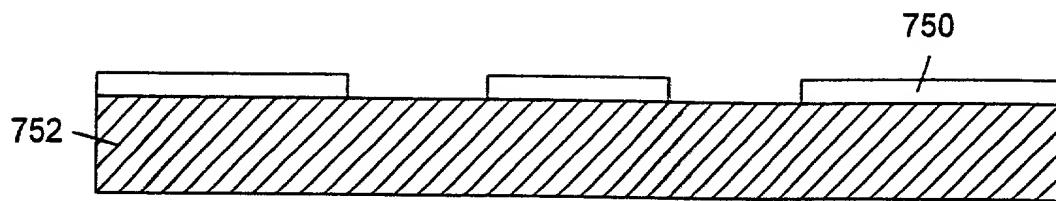


FIG. 27A

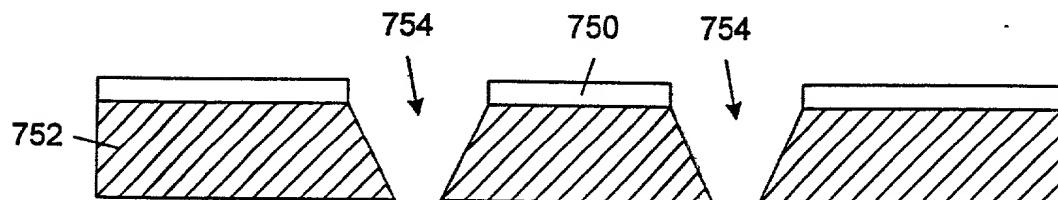


FIG. 27B

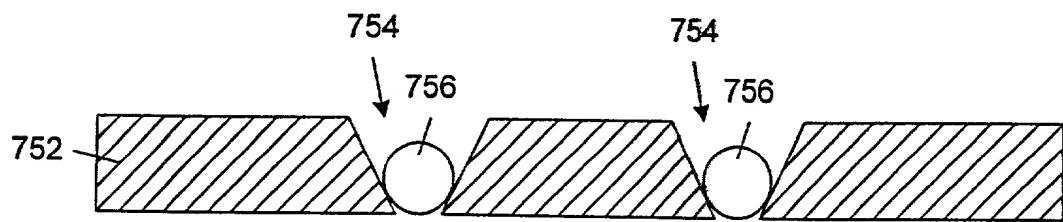


FIG. 27C

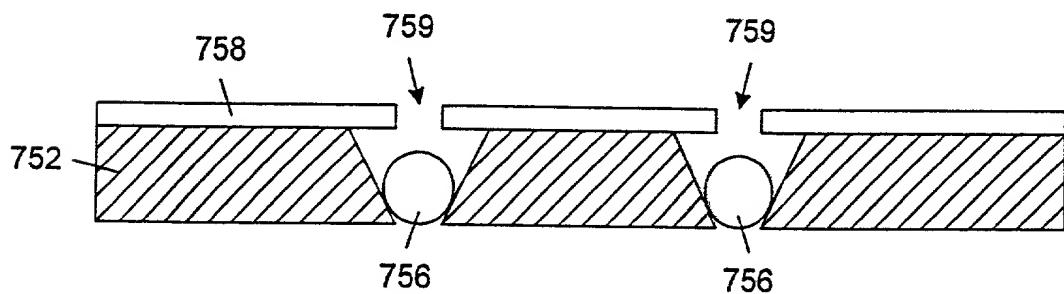


FIG. 27D



FIG. 28A

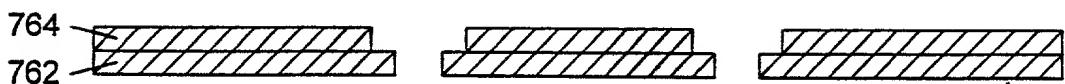


FIG. 28B

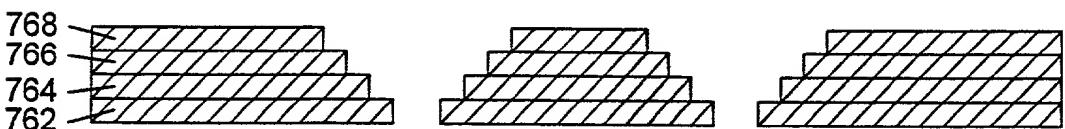


FIG. 28C

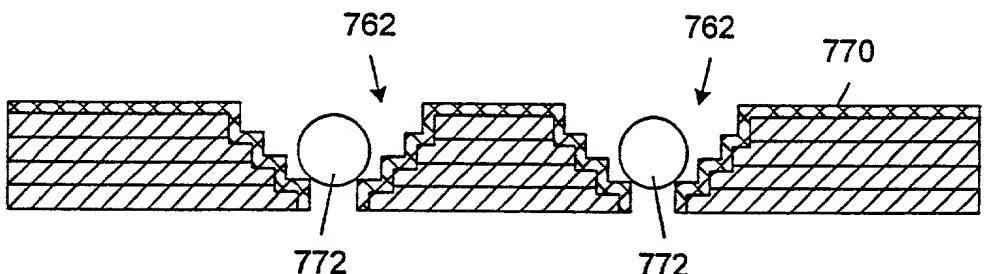


FIG. 28D

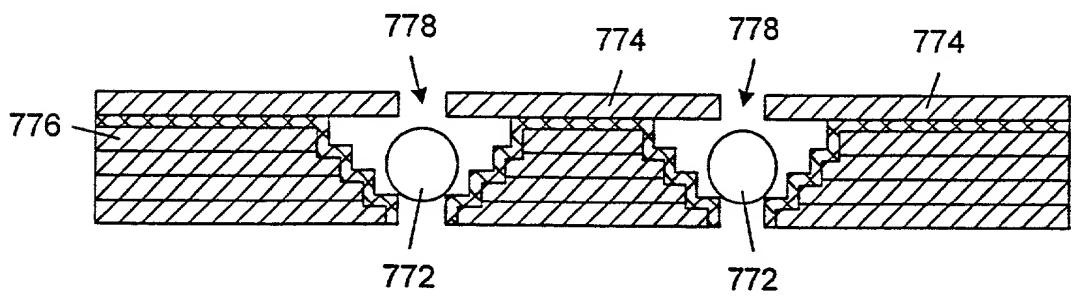


FIG. 28E

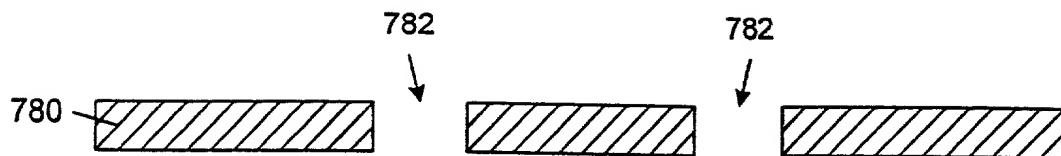


FIG. 29A

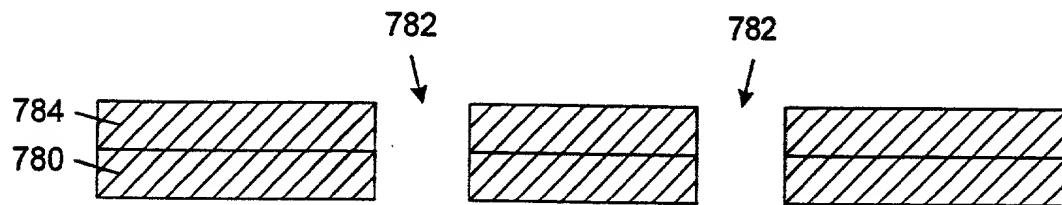


FIG. 29B

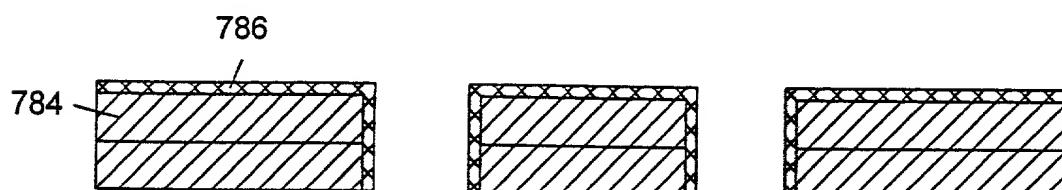


FIG. 29C

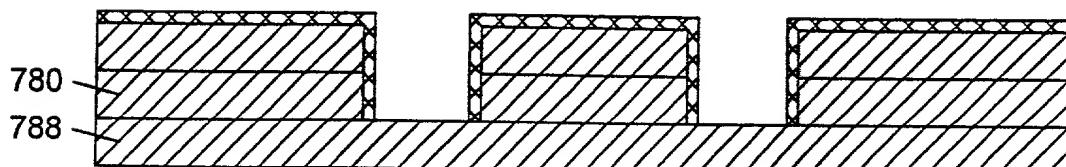


FIG. 29D

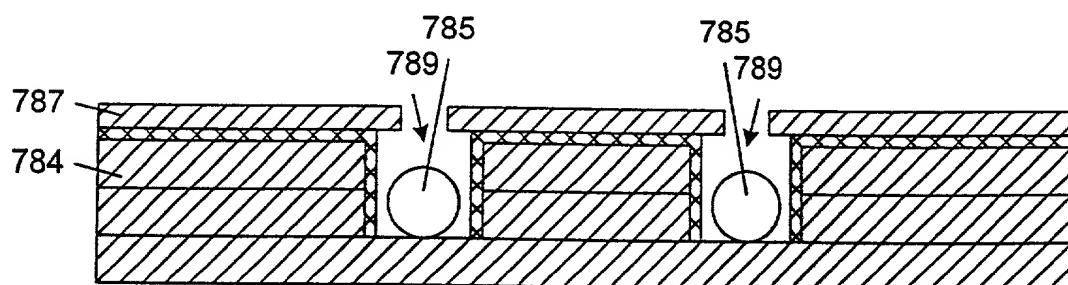


FIG. 29E

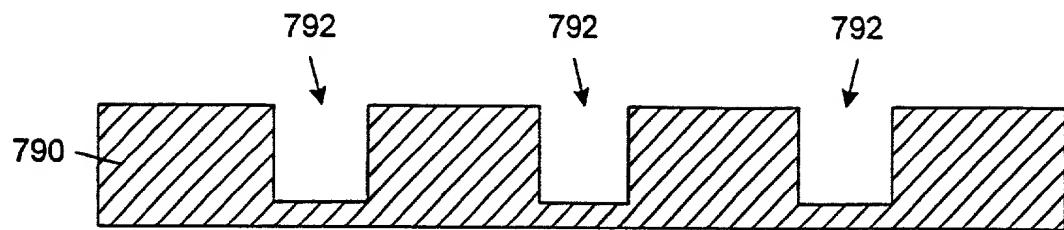


FIG. 30A

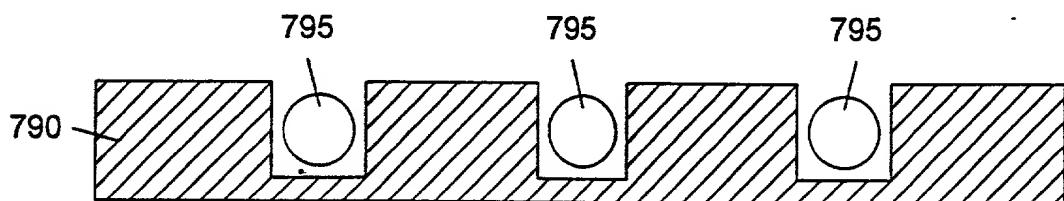


FIG. 30B

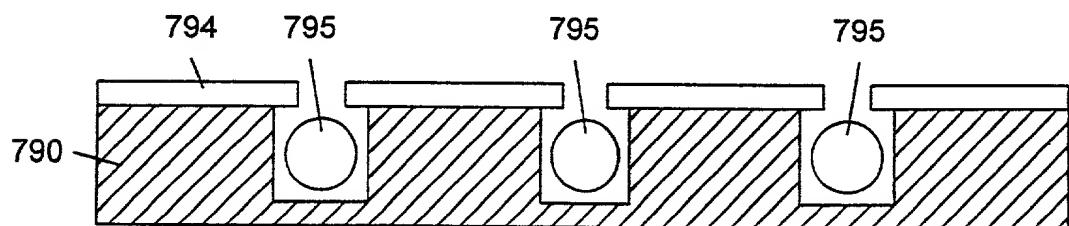


FIG. 30C

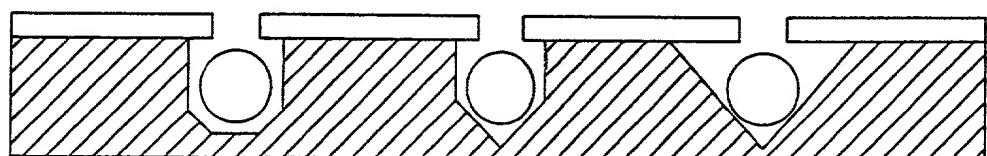


FIG. 30D

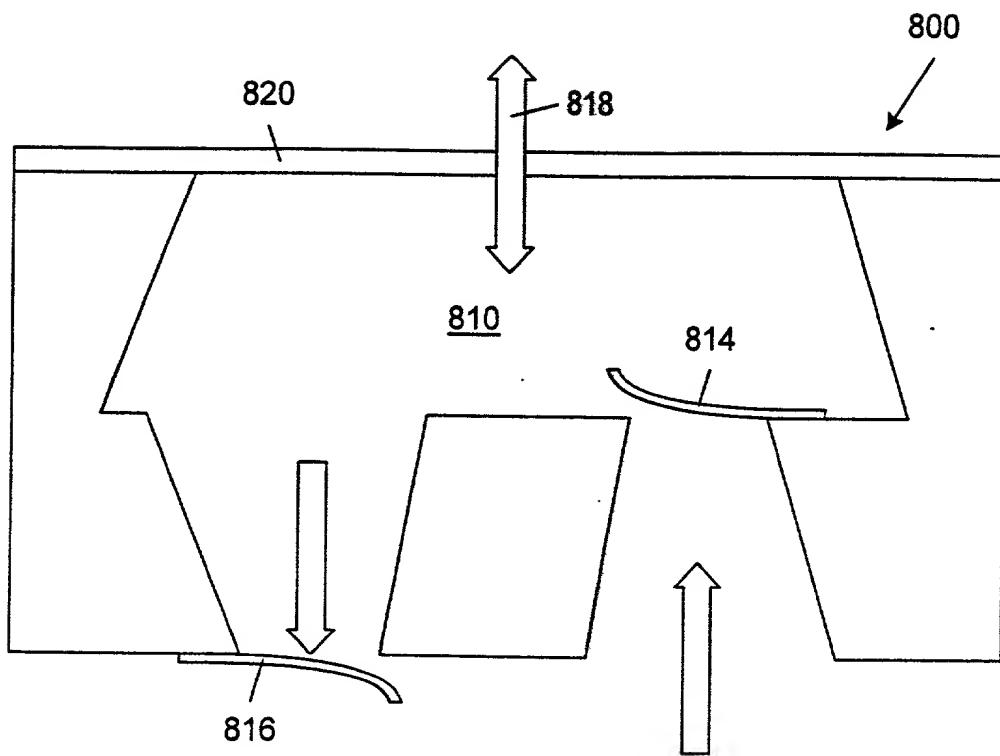


FIG. 31

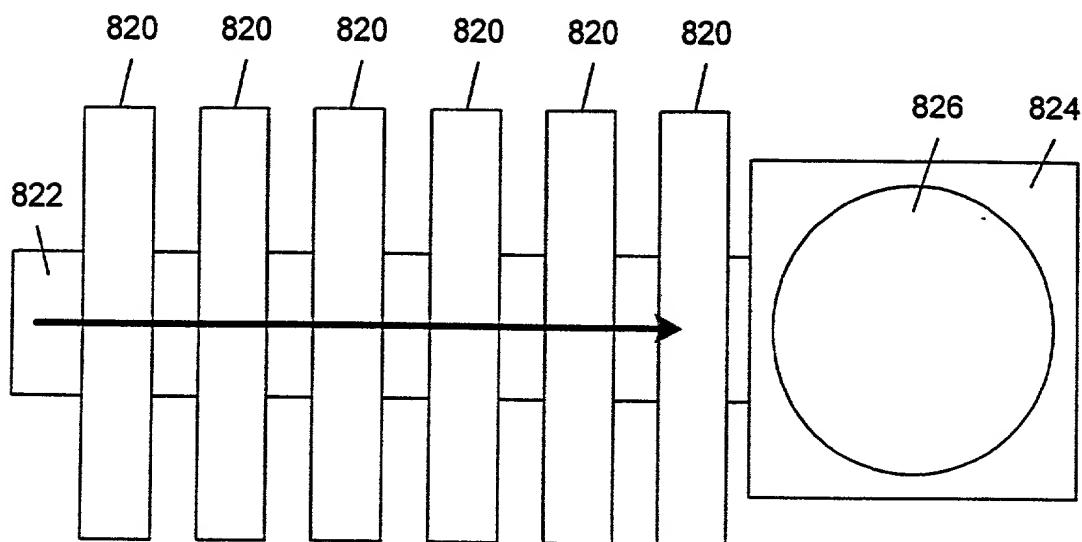


FIG. 32

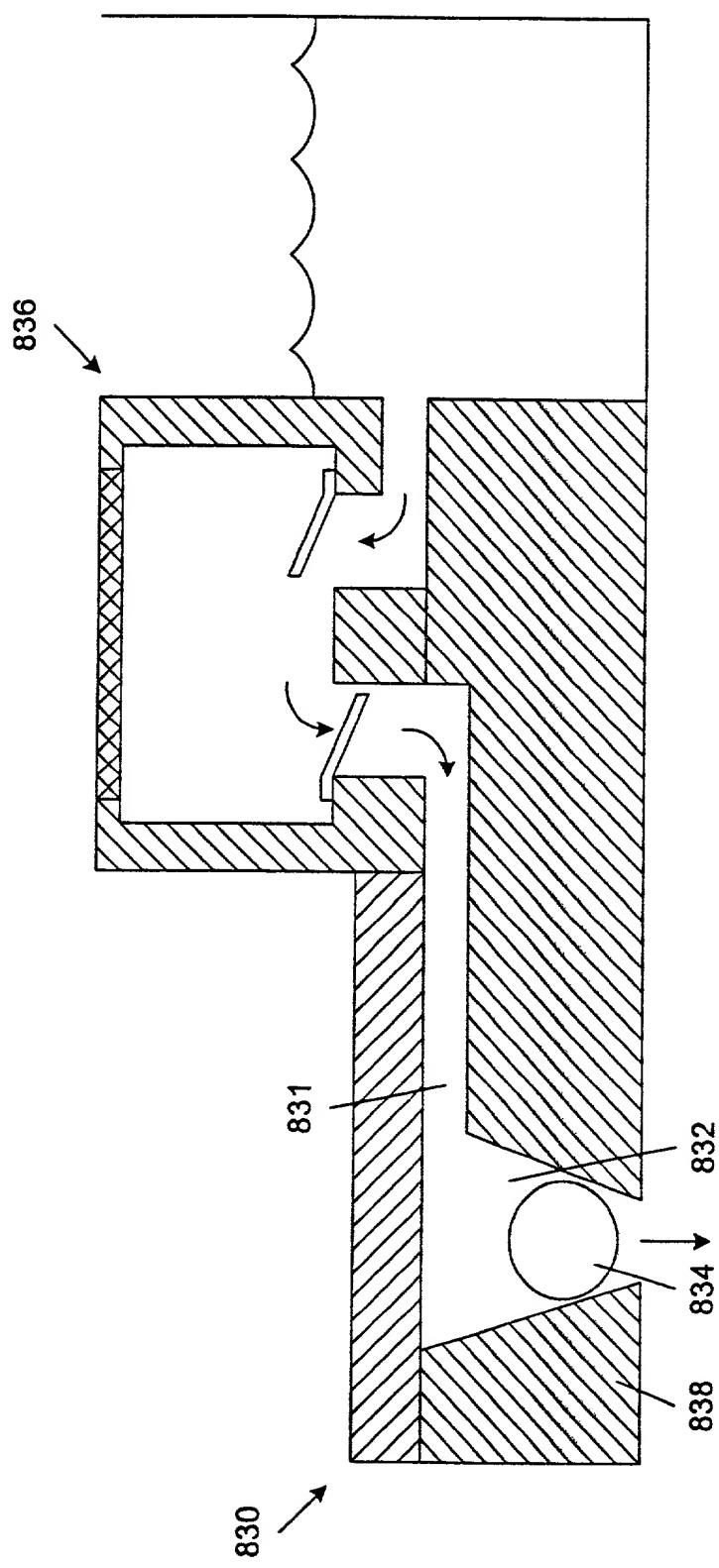


FIG. 33

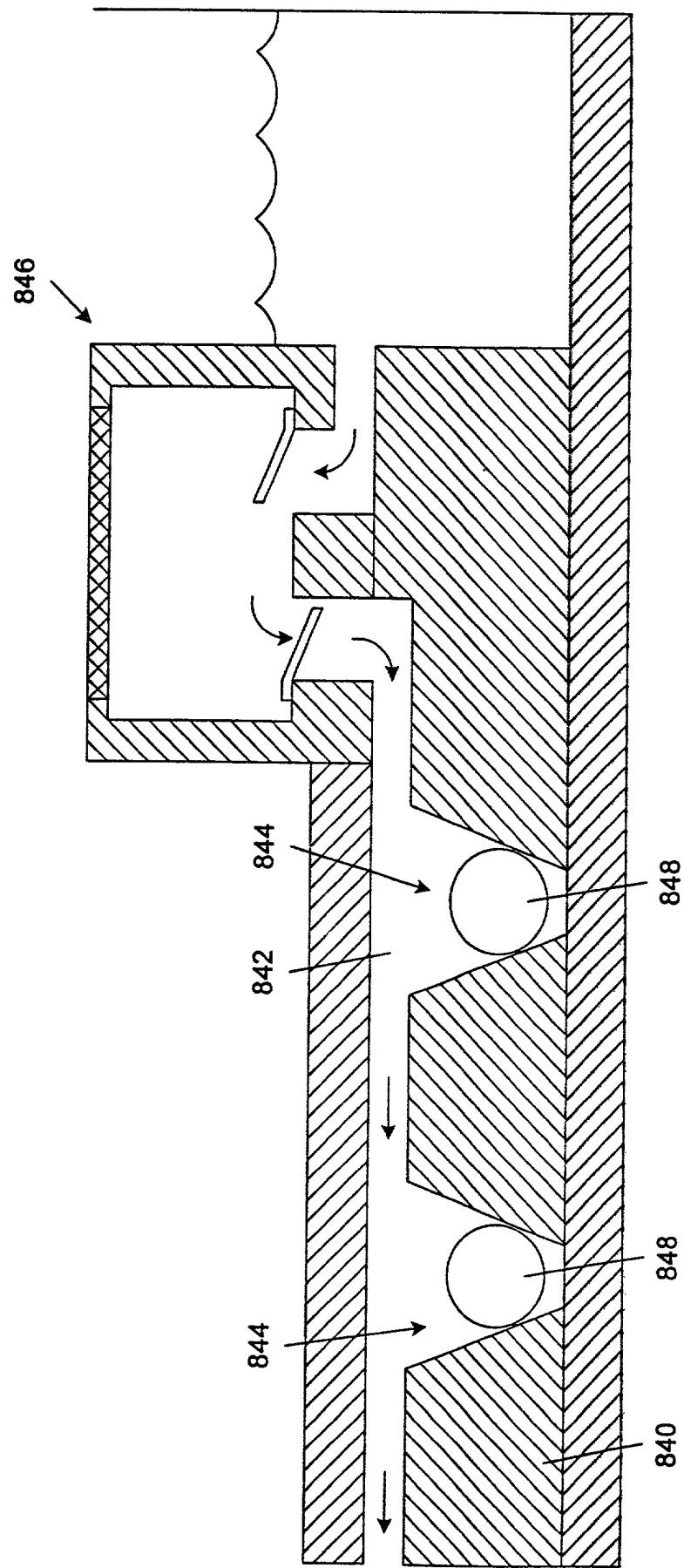


FIG. 34

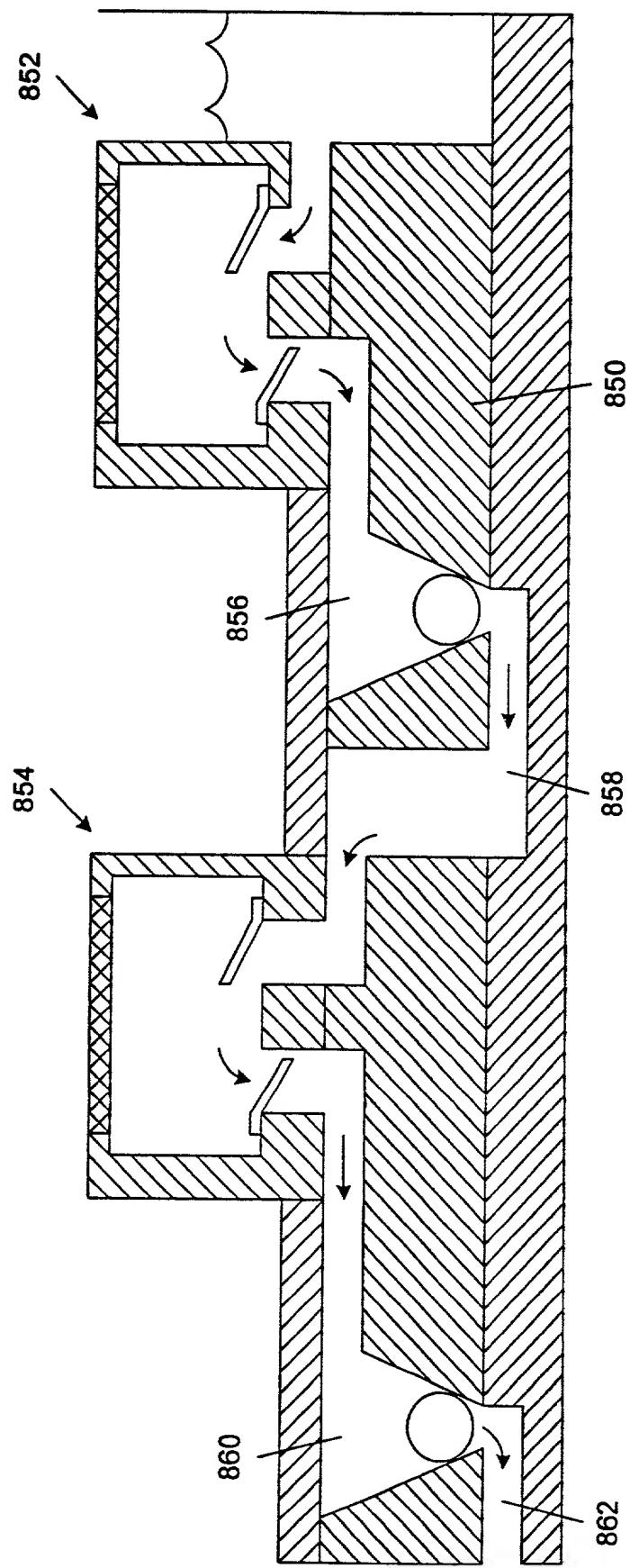


FIG. 35

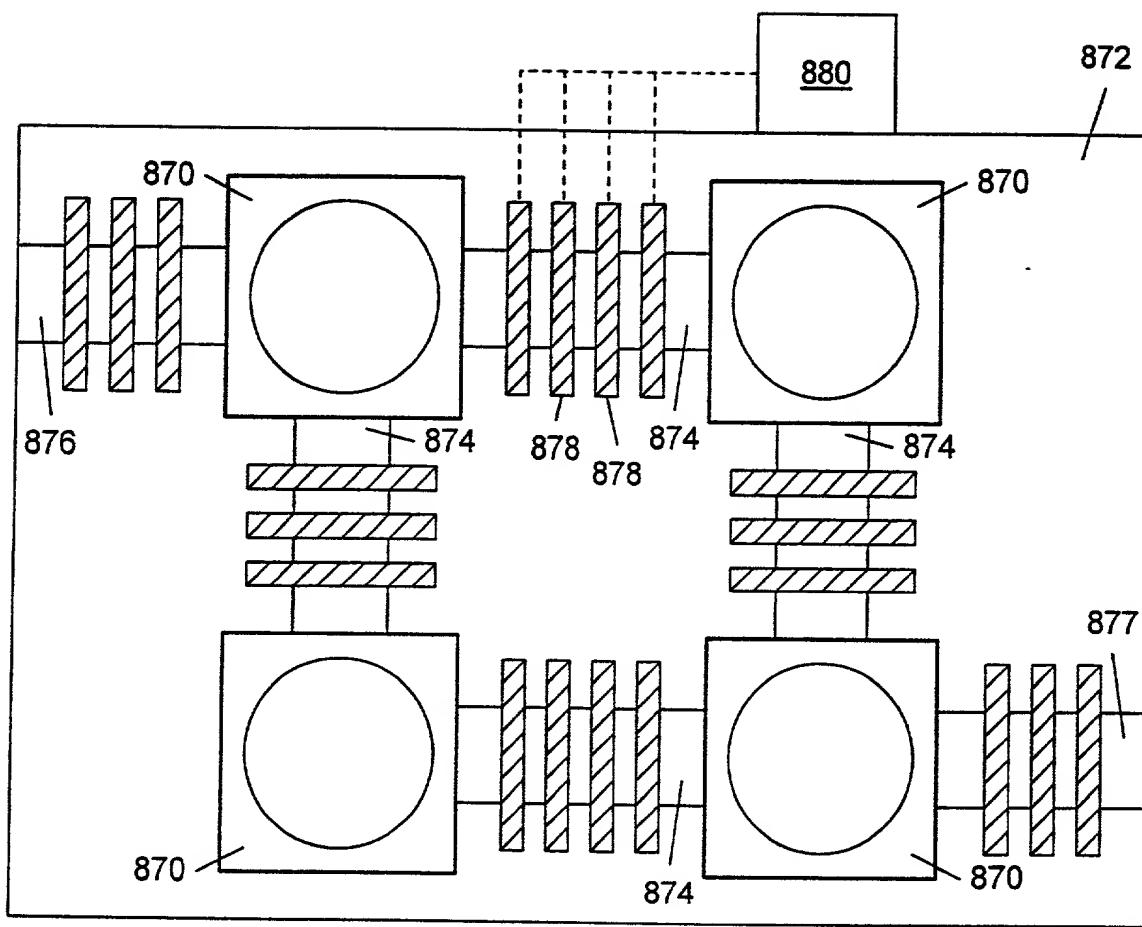


FIG. 36

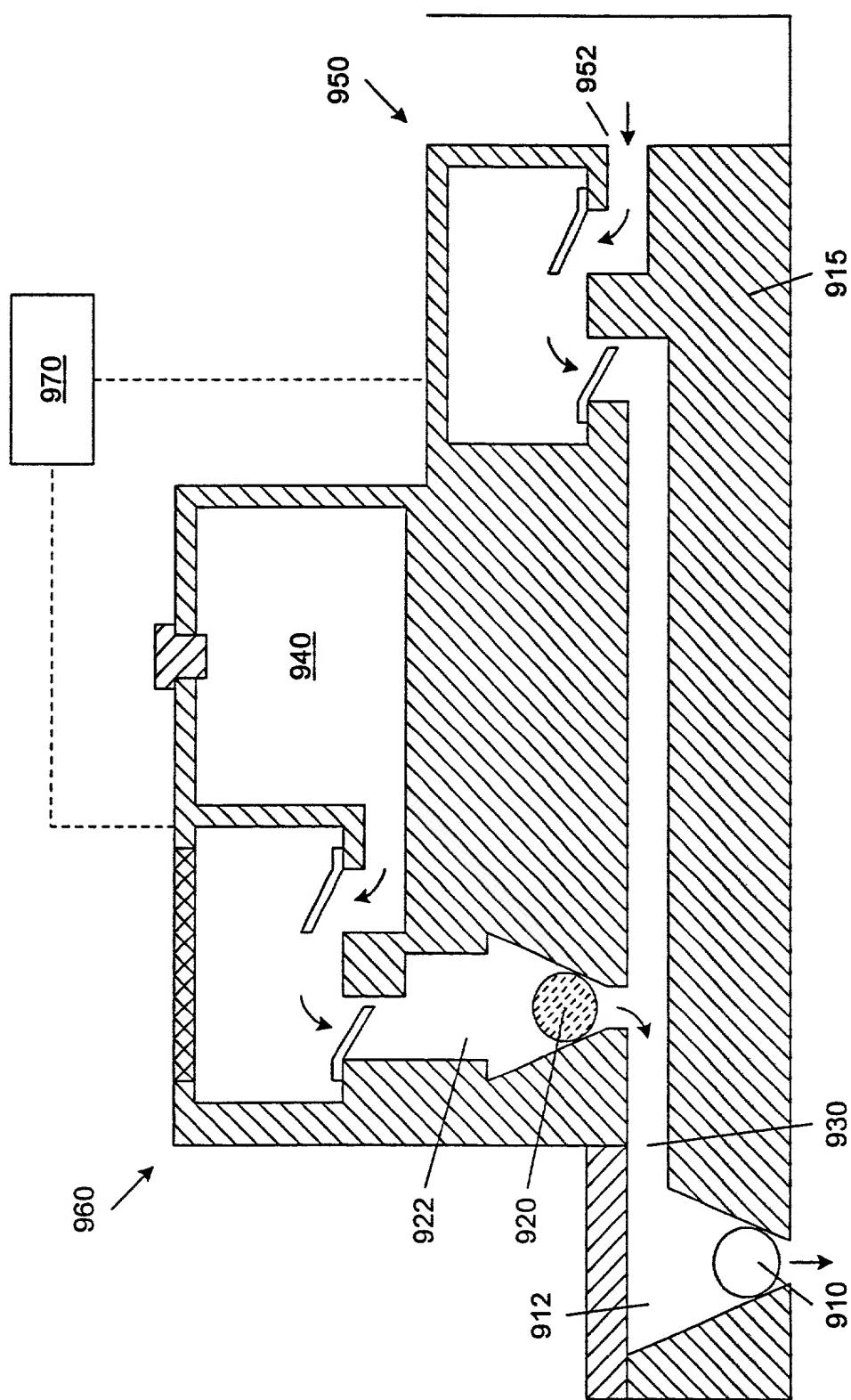


FIG. 37

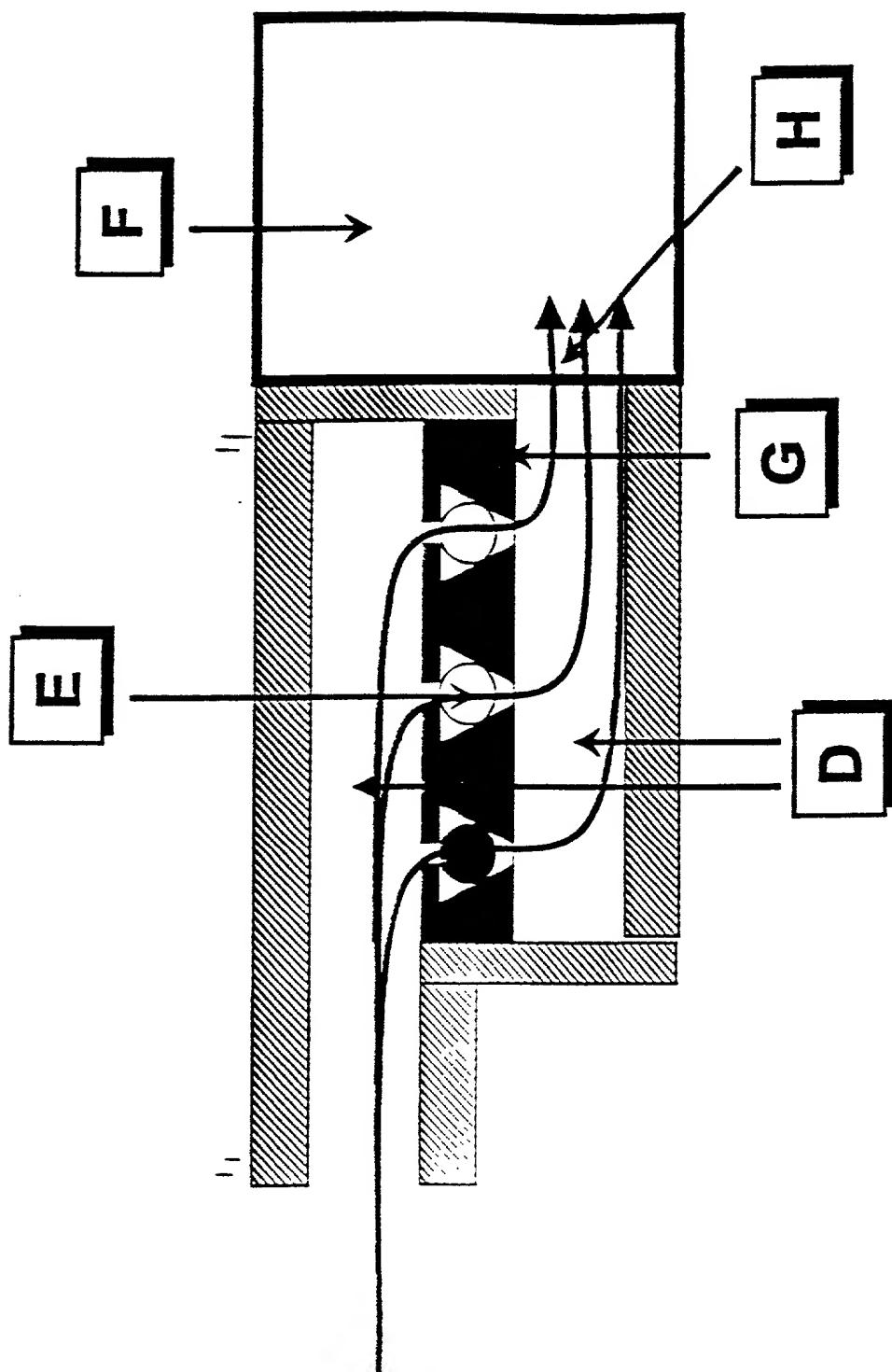


Figure 38

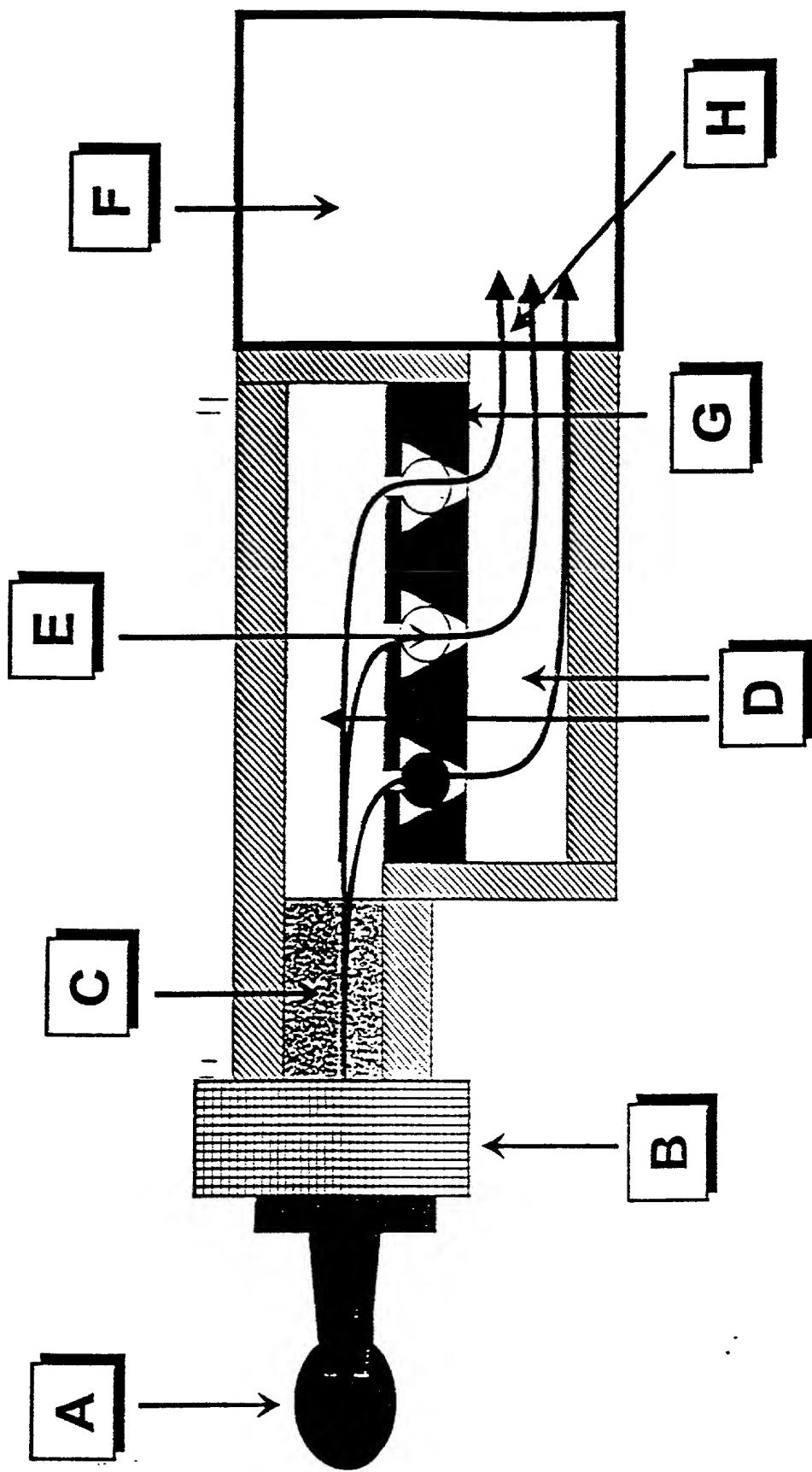
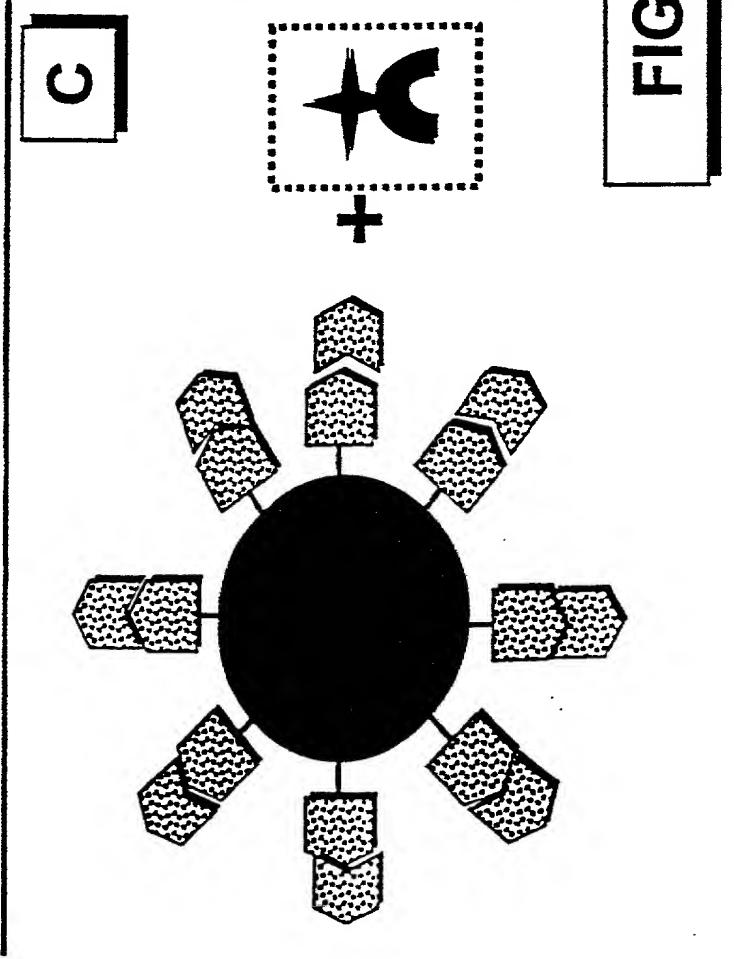
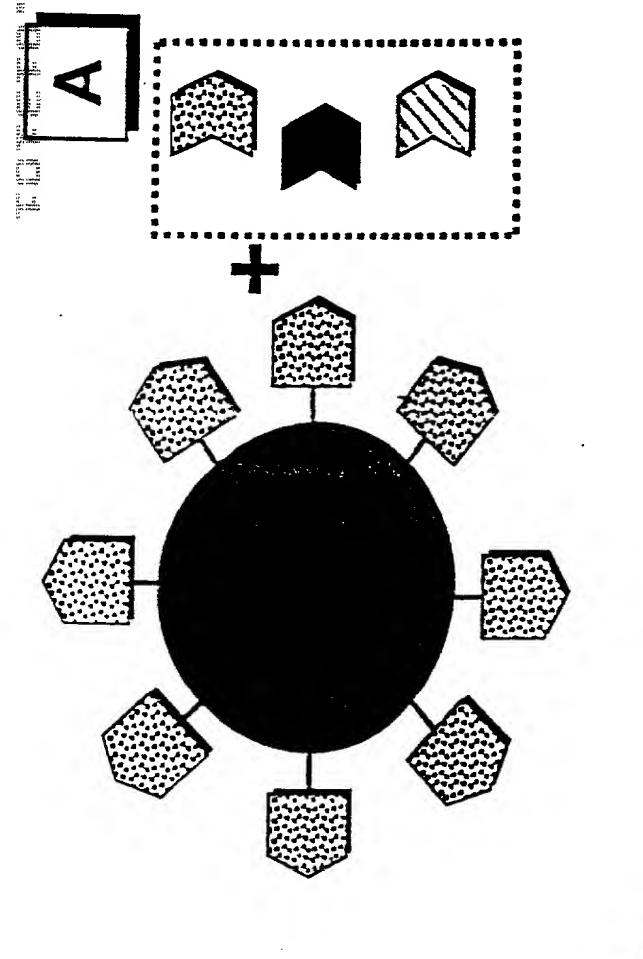
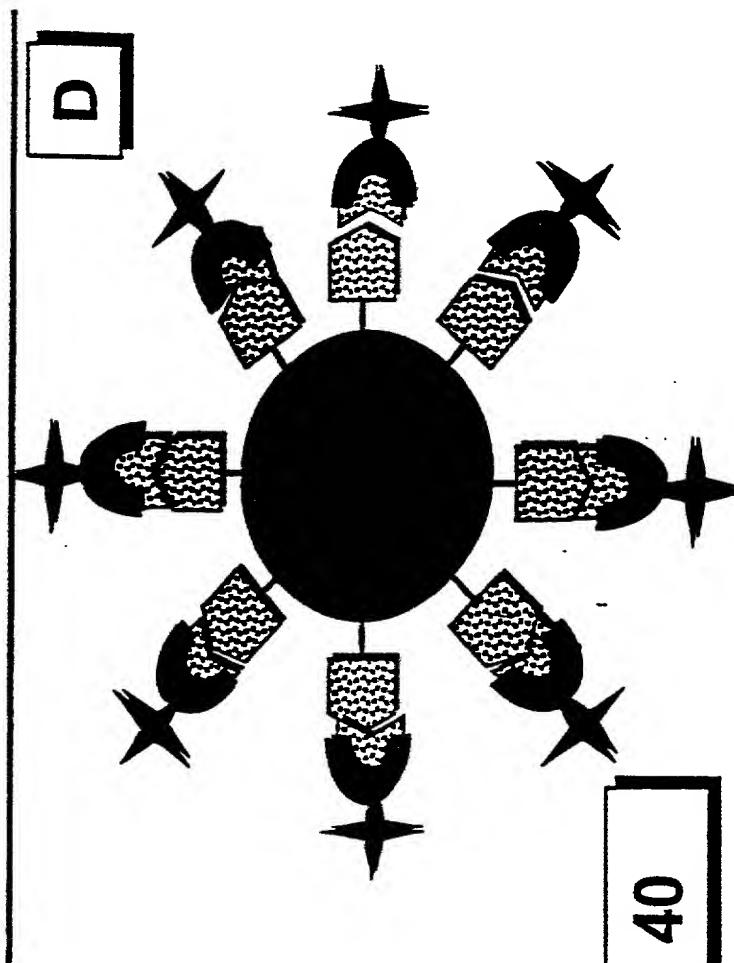
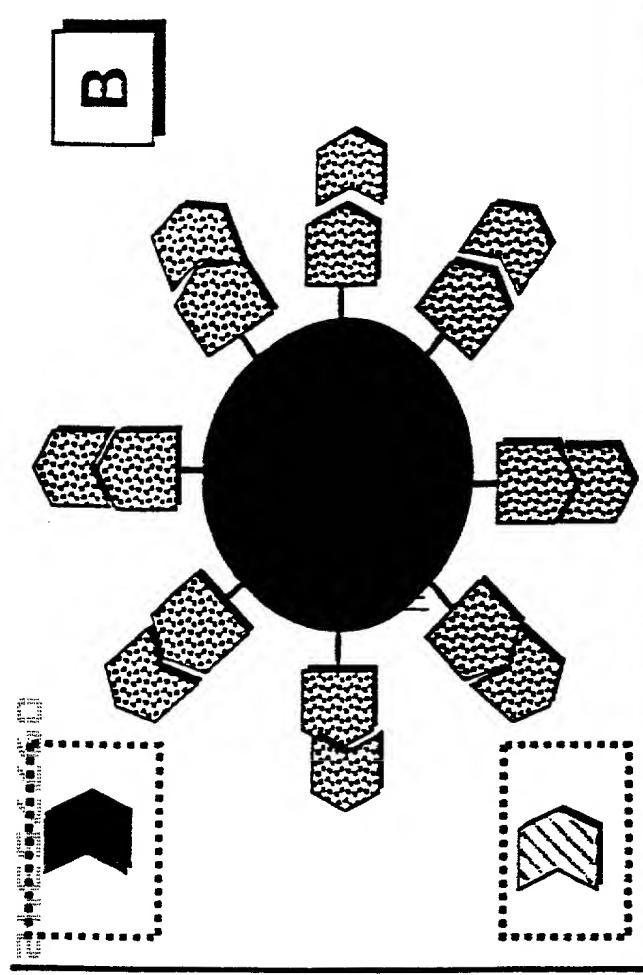
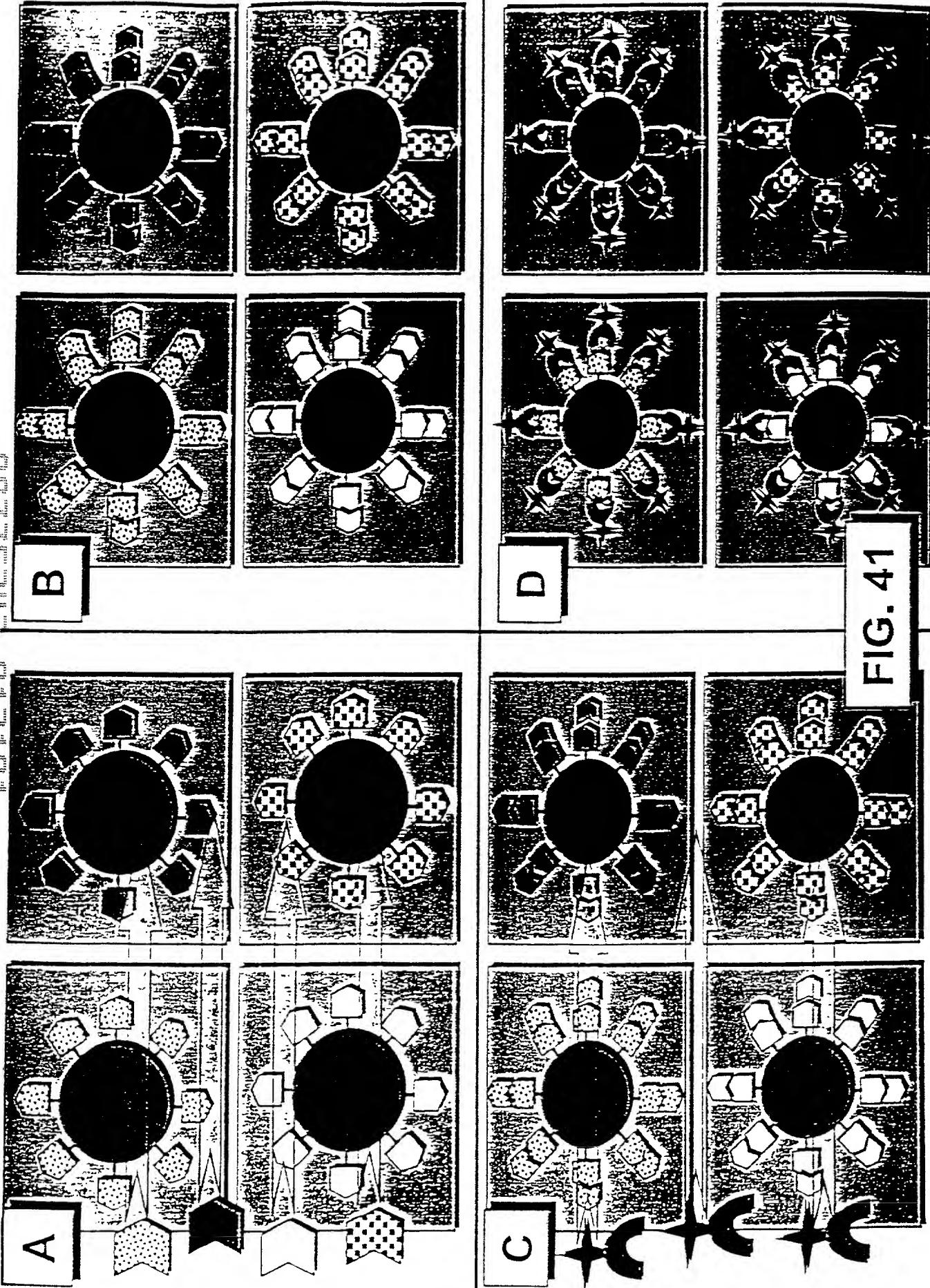


Figure 39

**FIG. 40**



# Electronic Tongue Biological Sample Acquisition Prototype 6/2/99

49/69

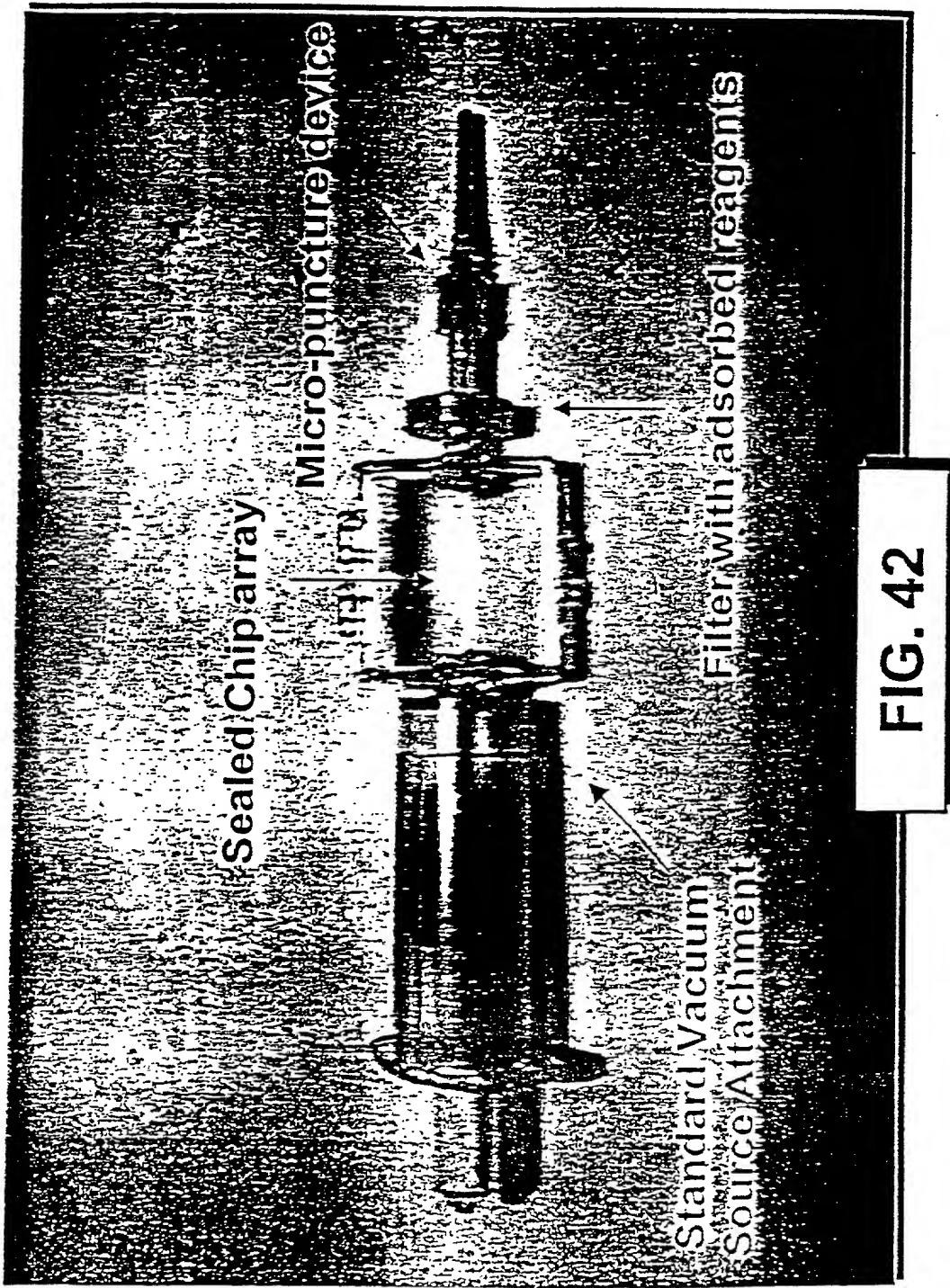


FIG. 42

## Forward Flow Direction

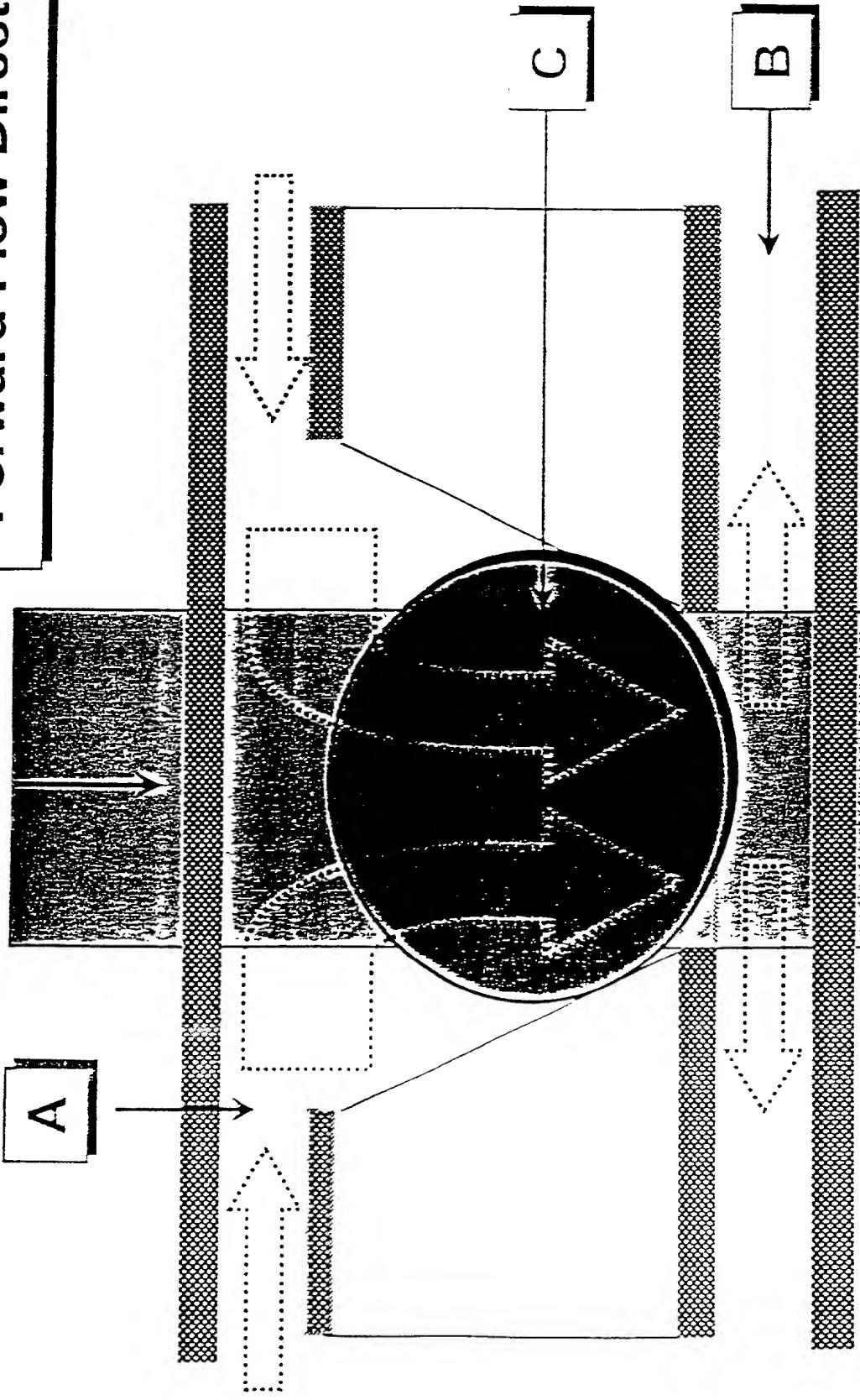
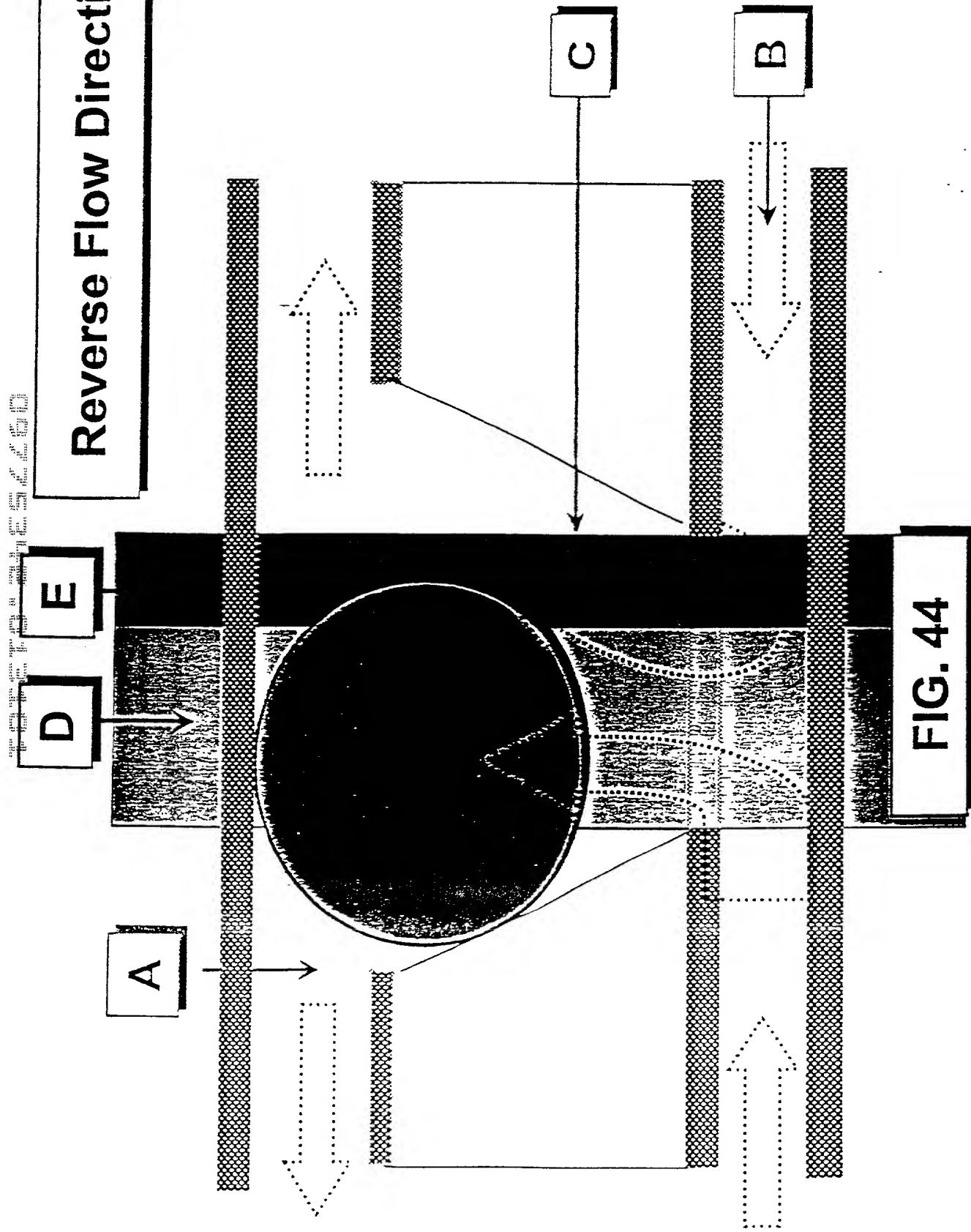


FIG. 43

## Reverse Flow Direction



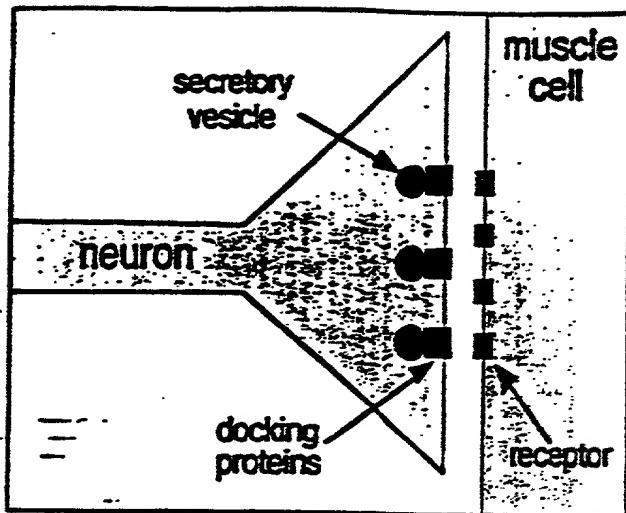


Fig. 45-A

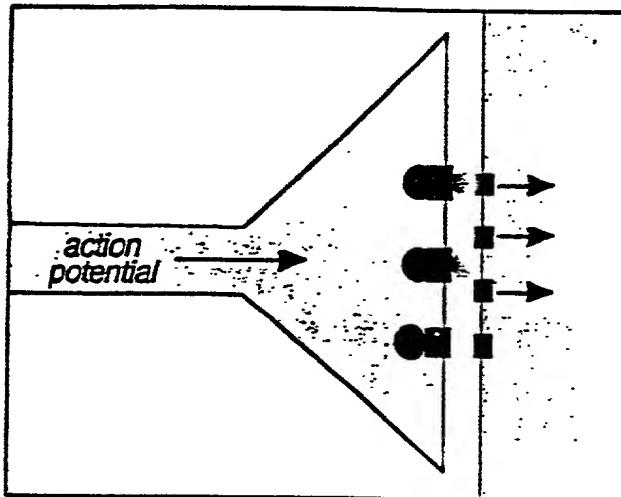


Fig. 45-B

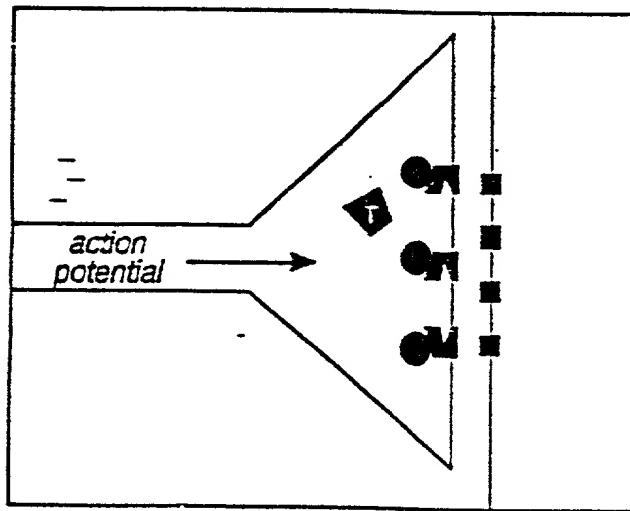


Fig. 45-C

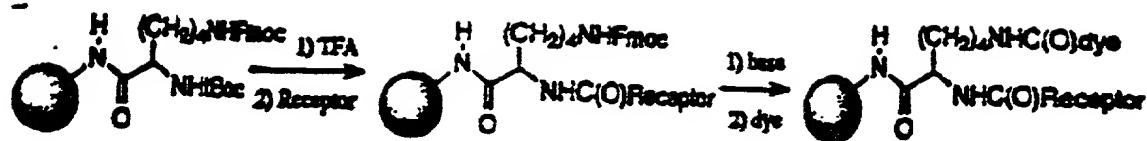


FIG. 45 D

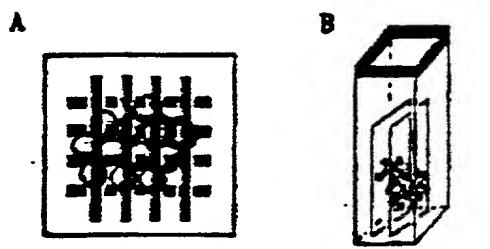


FIG. 46

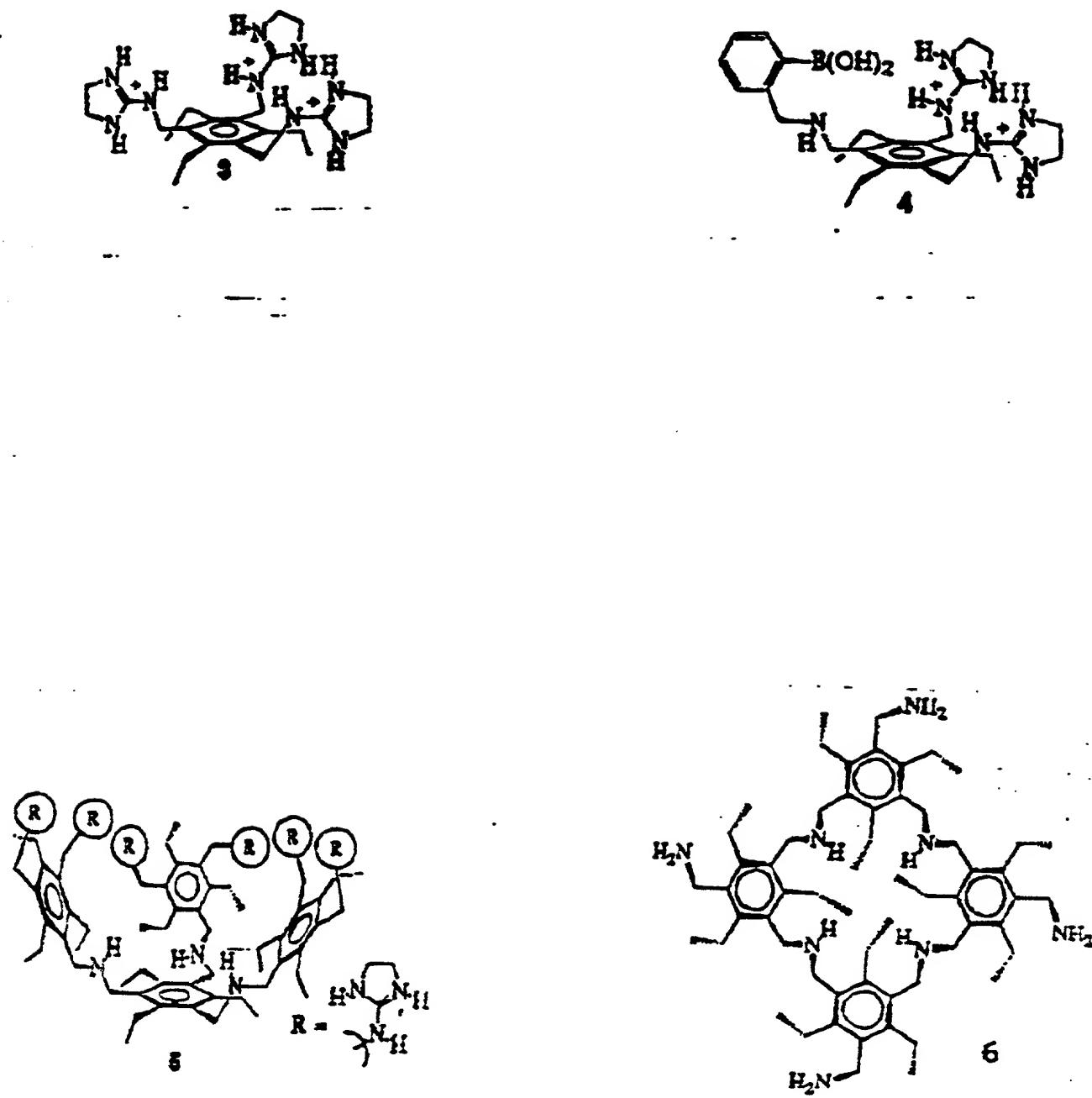


FIG. 47

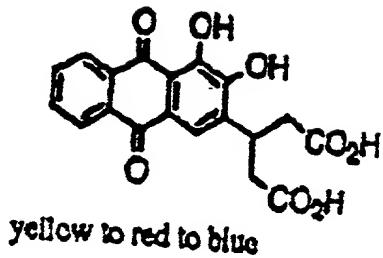
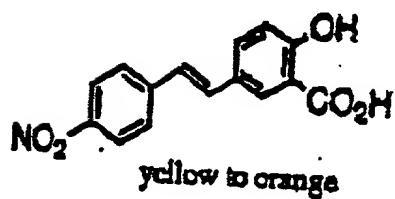
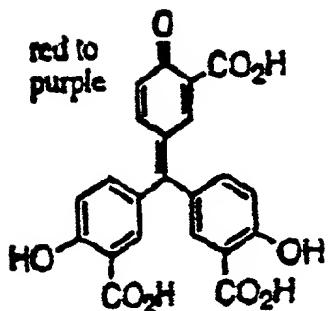
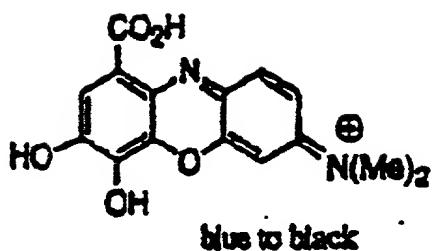
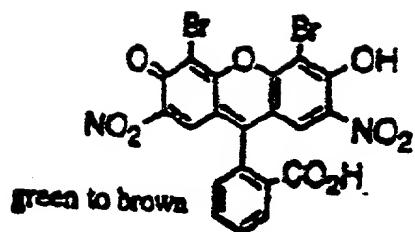


FIG. 48

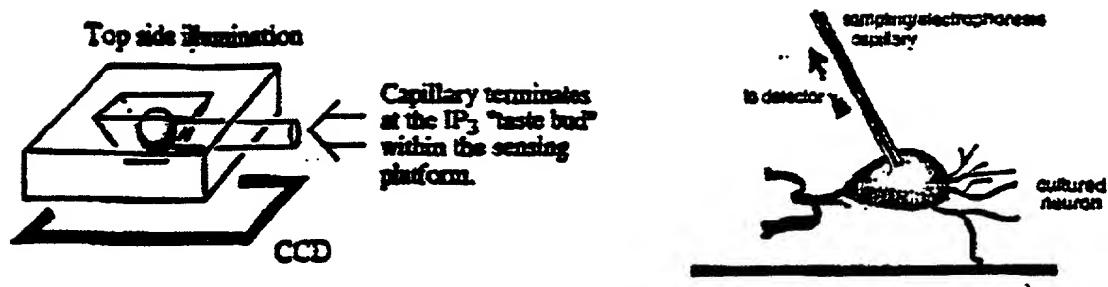


FIG. 49

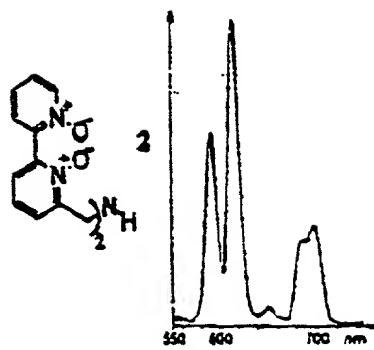
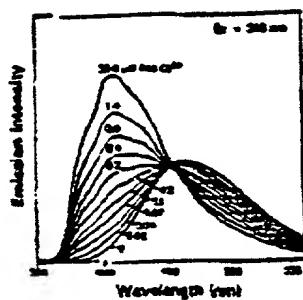
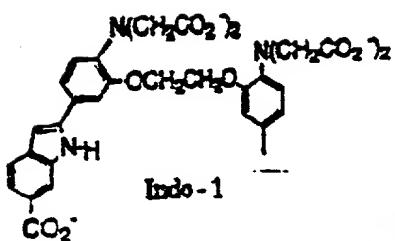


FIG. 50

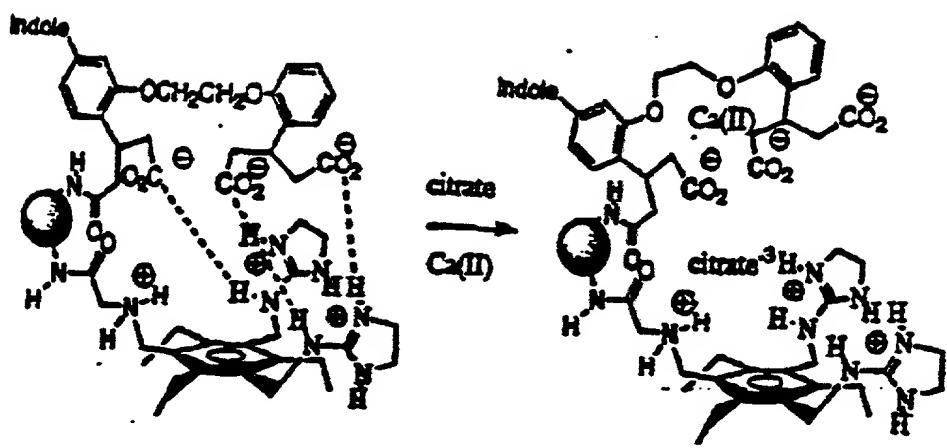


FIG. 51

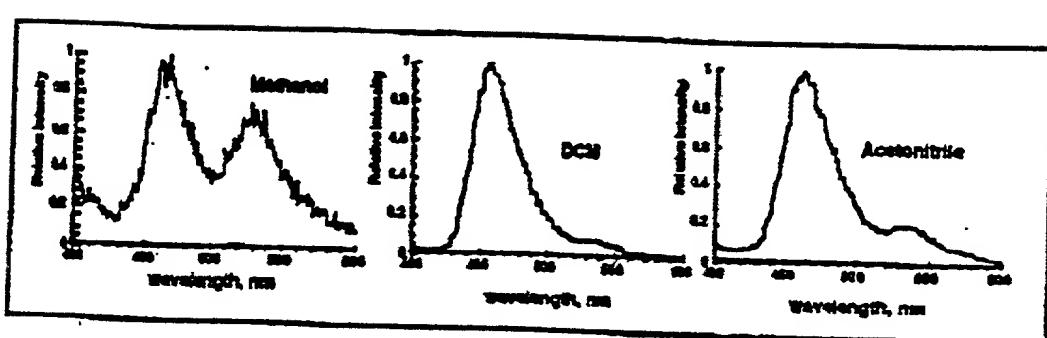


FIG. 52

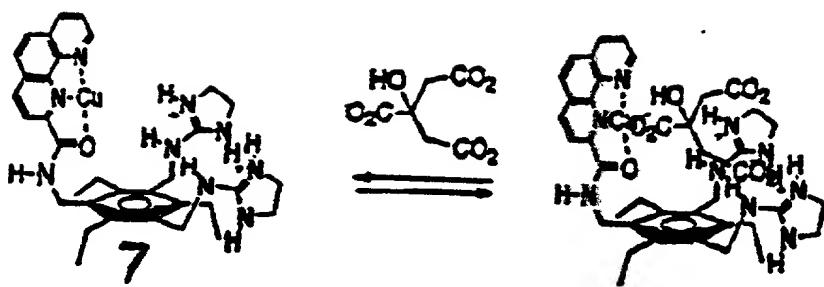


FIG. 53

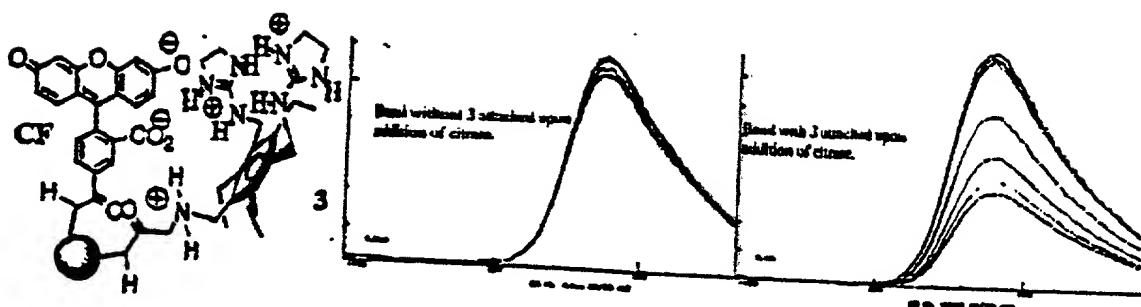


FIG. 54

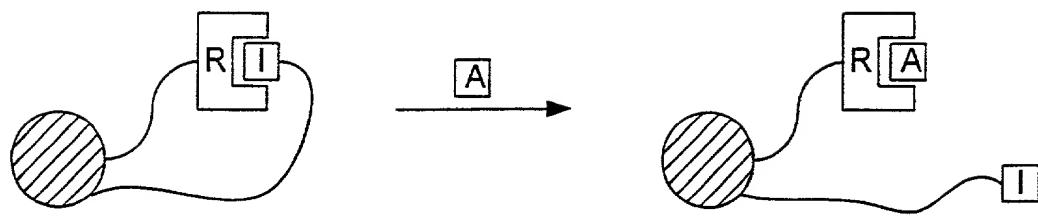


FIG. 55A

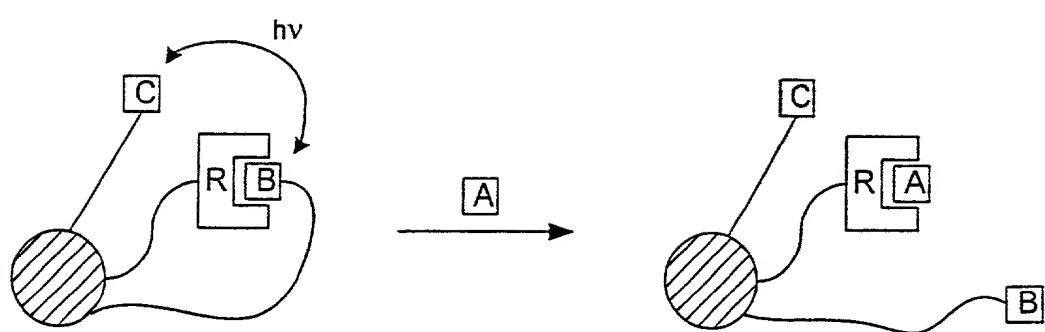


FIG. 55B

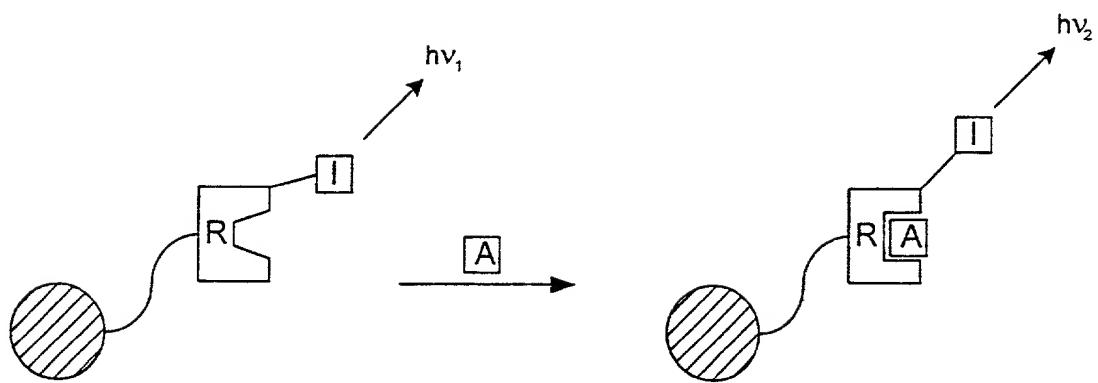


FIG. 55C

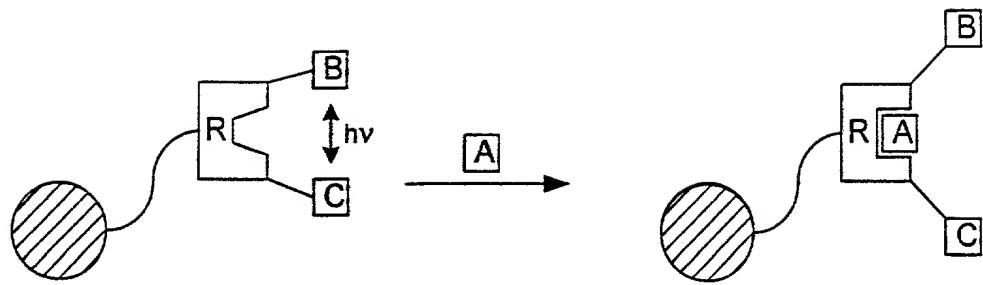


FIG. 55D

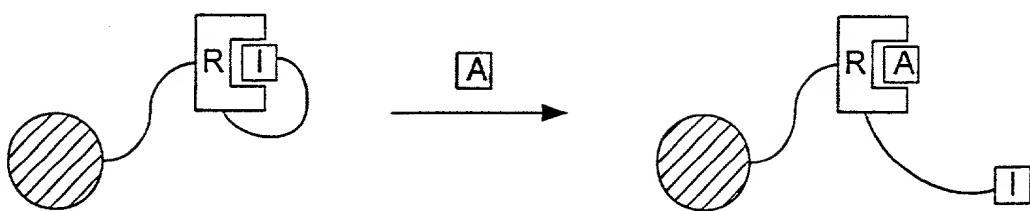


FIG. 55E

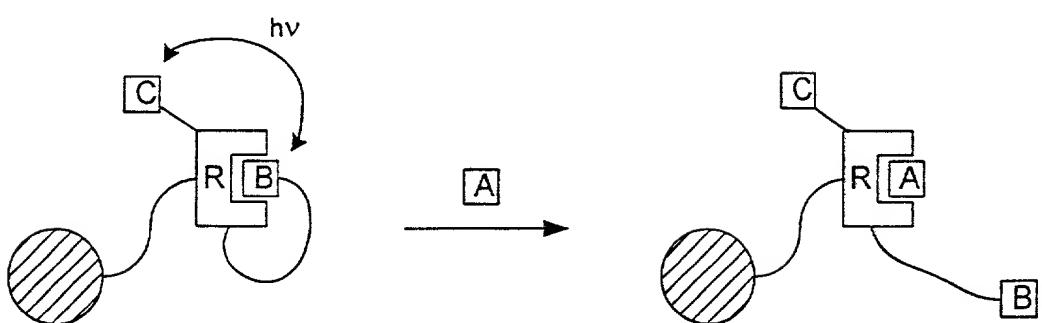


FIG. 55F

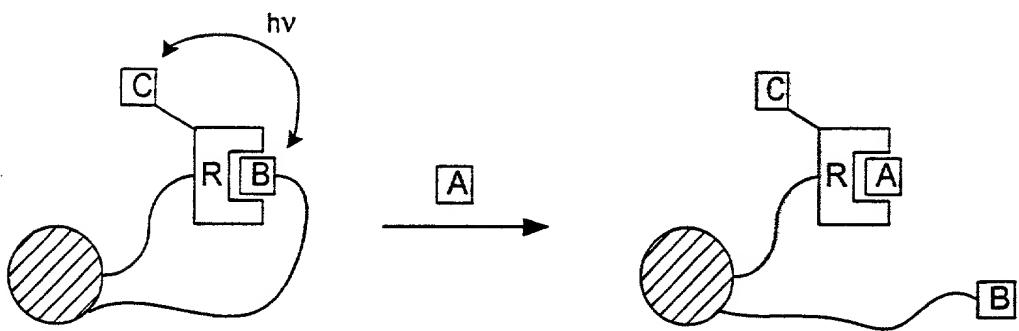


FIG. 55G

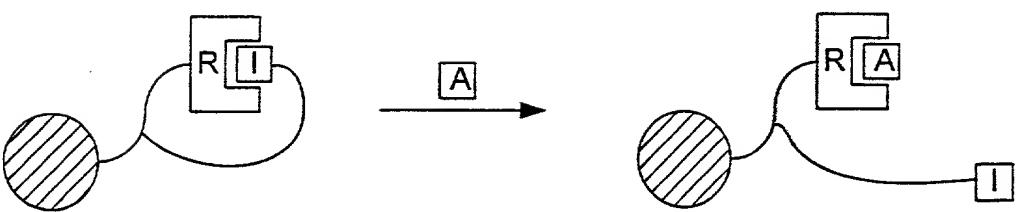


FIG. 55H

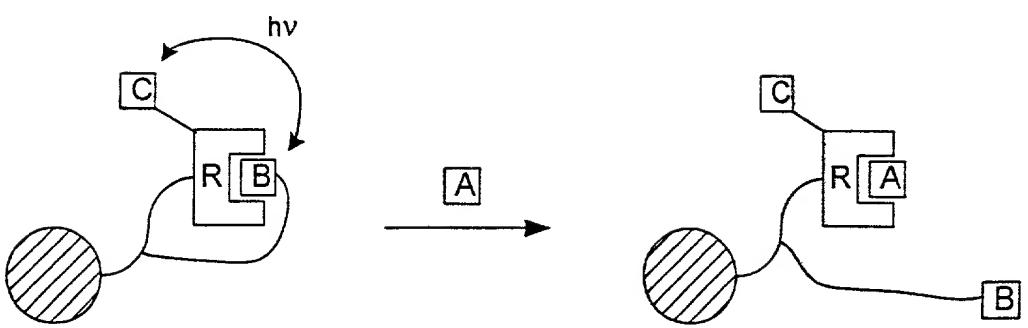


FIG. 55I

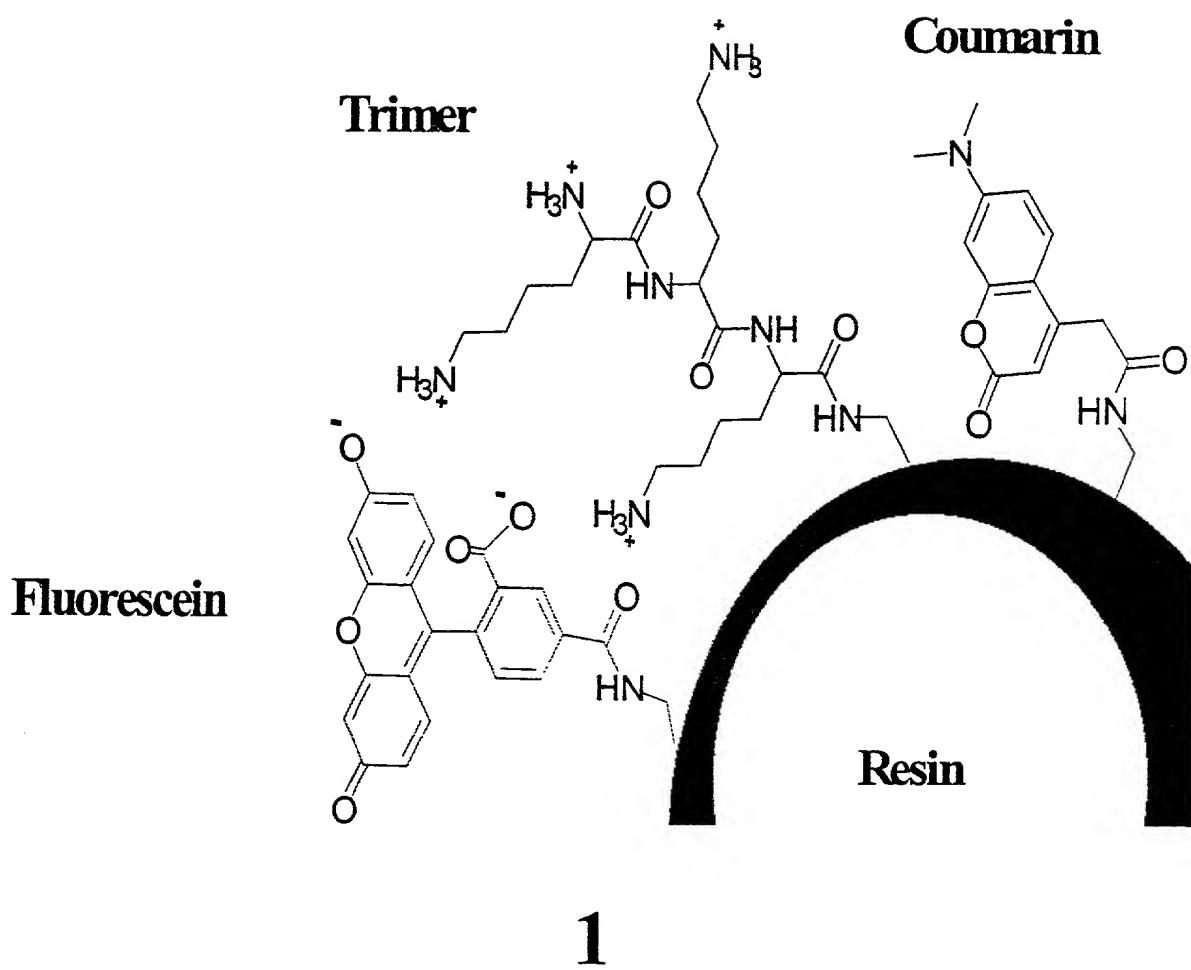


FIG. 56

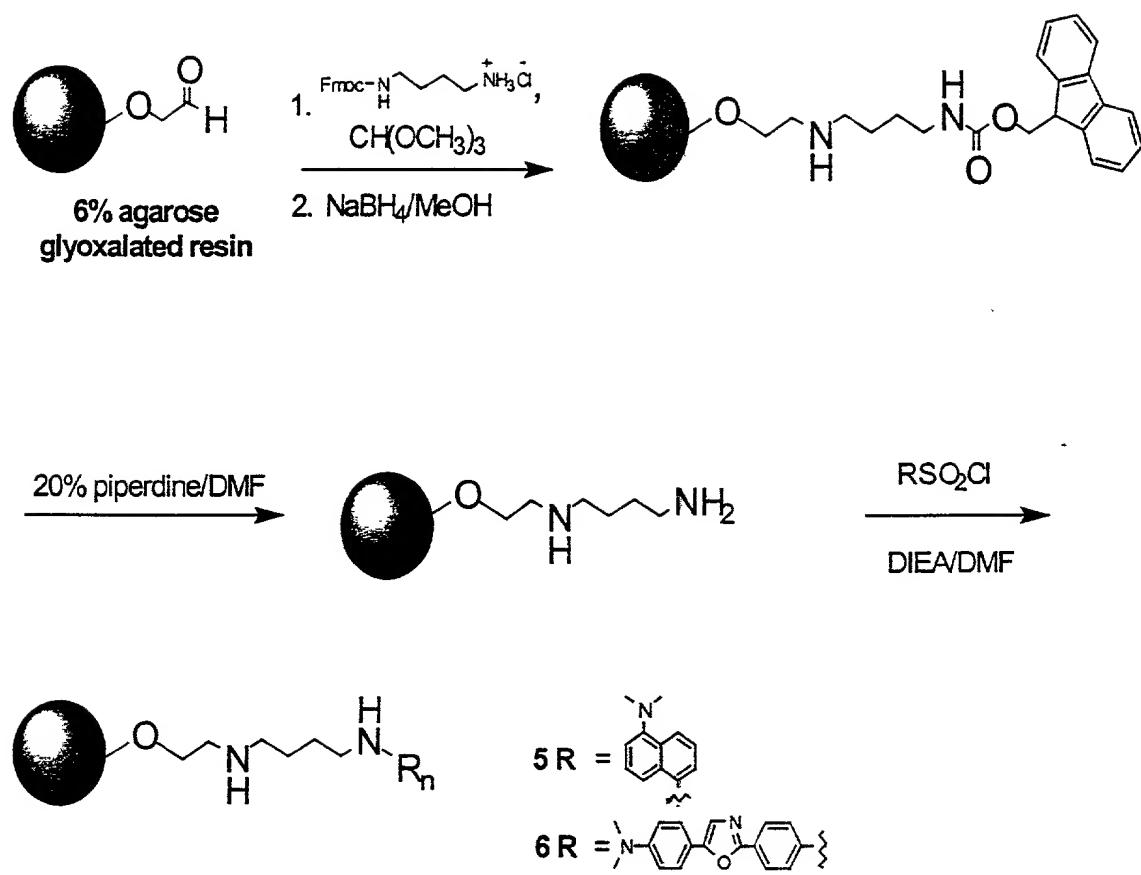


FIG. 57

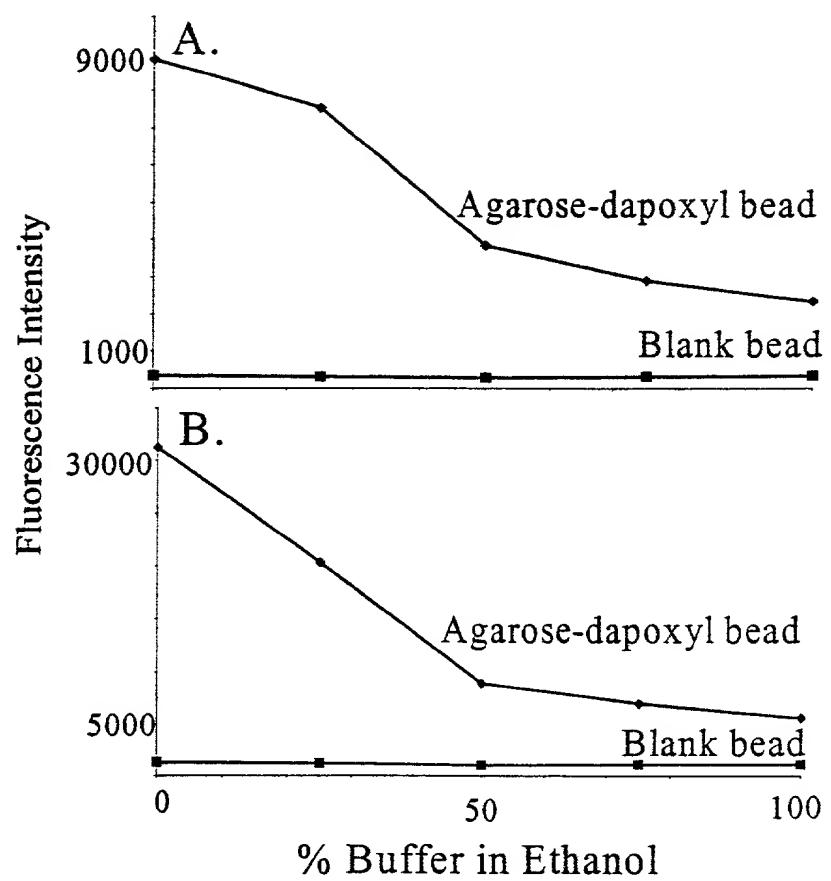


FIG. 58

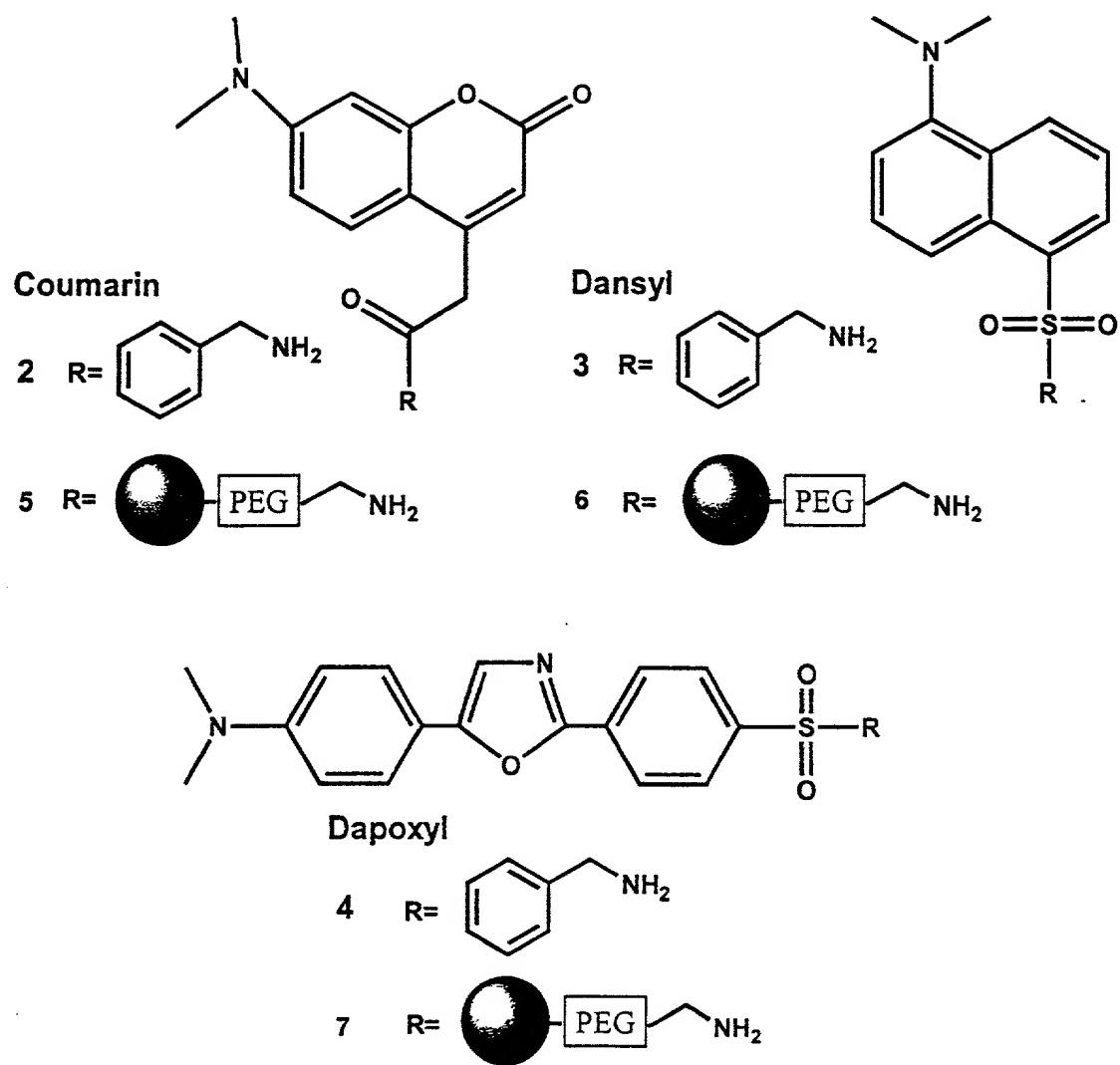


FIG. 59

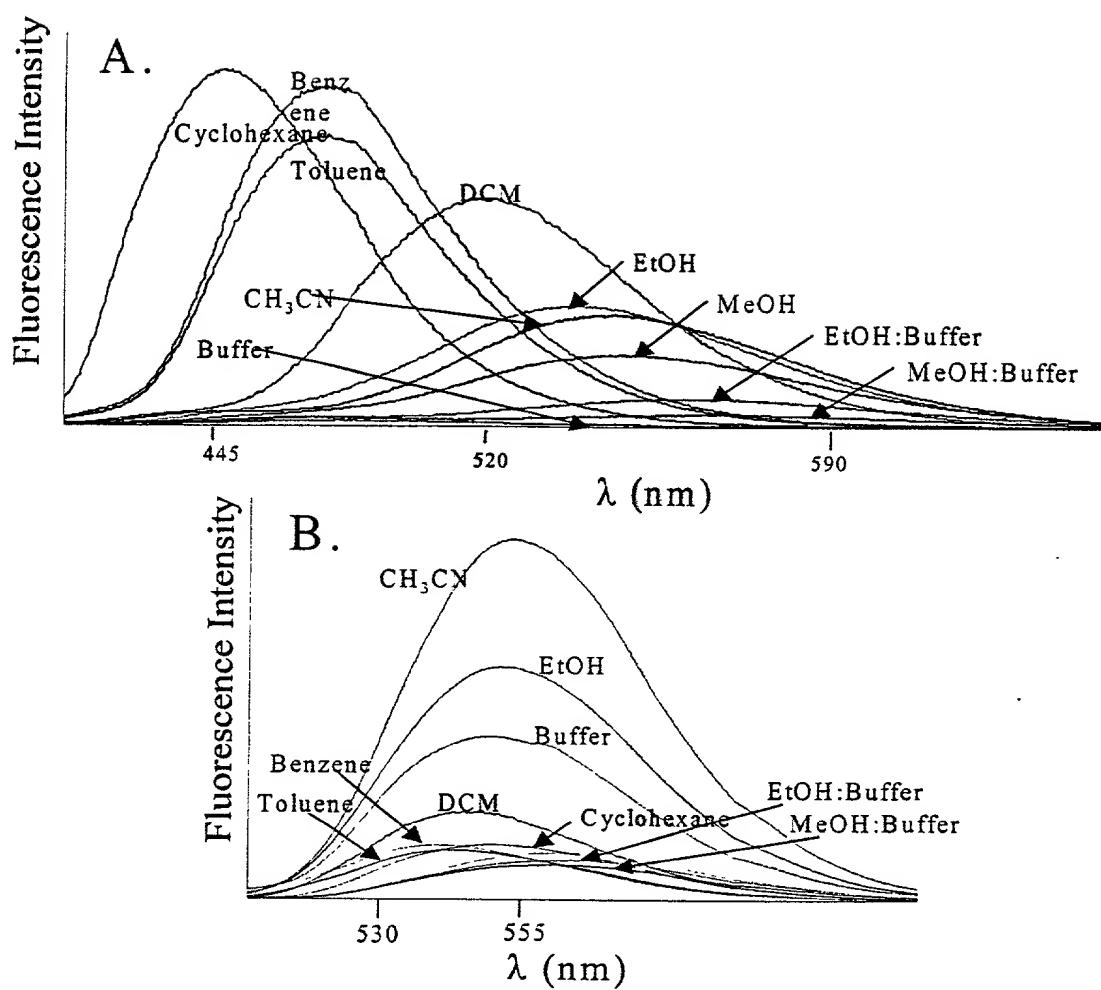
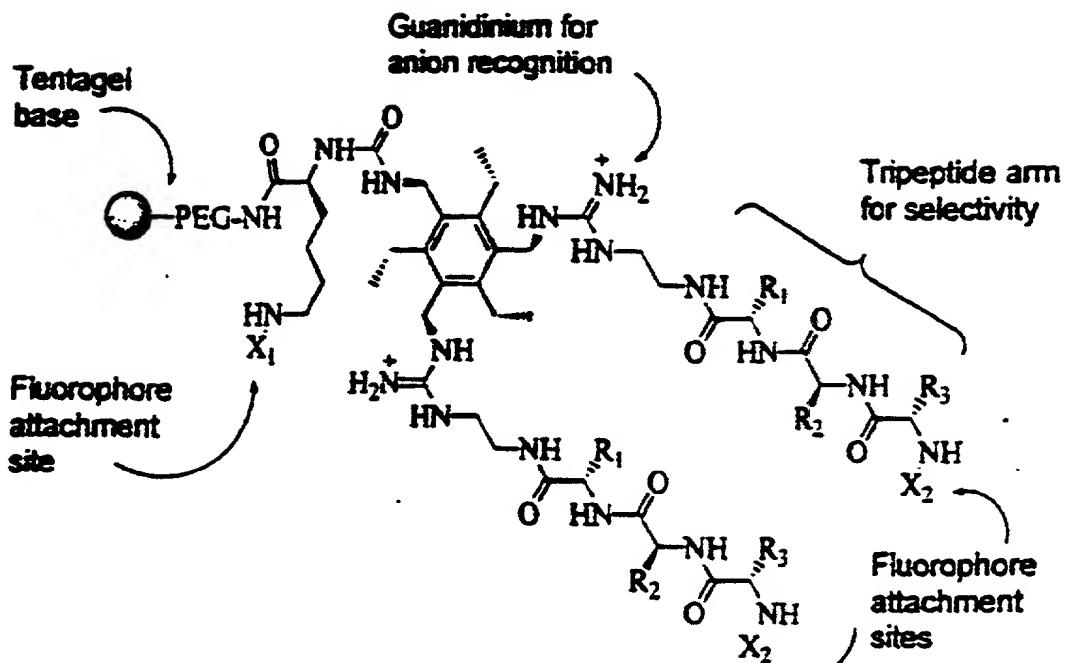
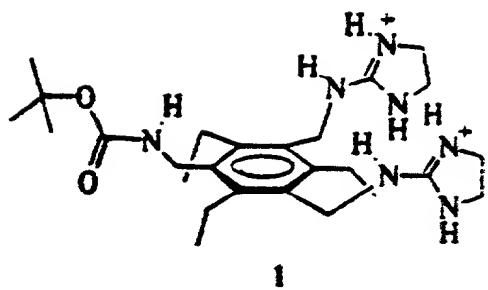


FIG. 60



2:  $X_1 = X_2 = H$

3:  $X_1 =$

$X_2 =$

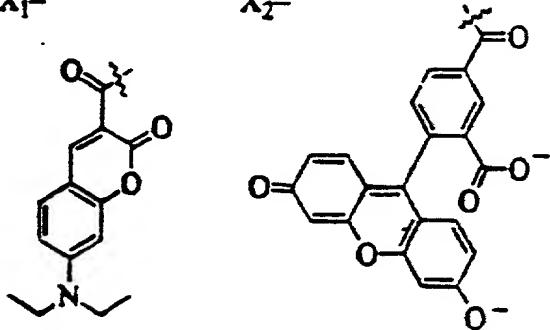


FIG. 61

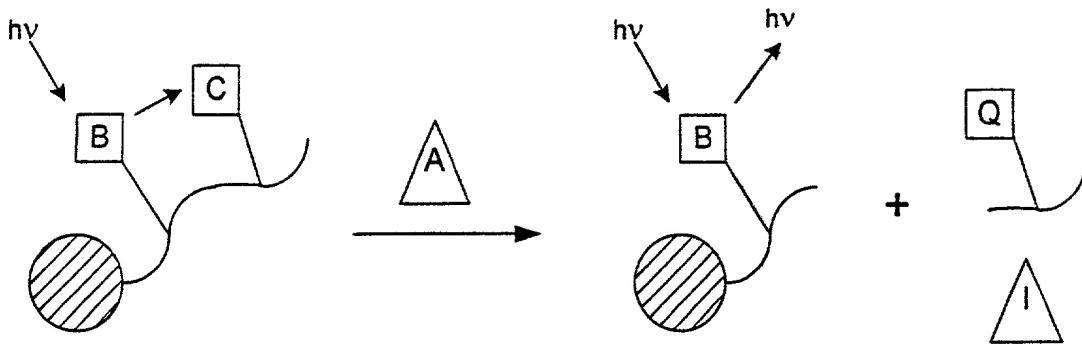


FIG. 62A

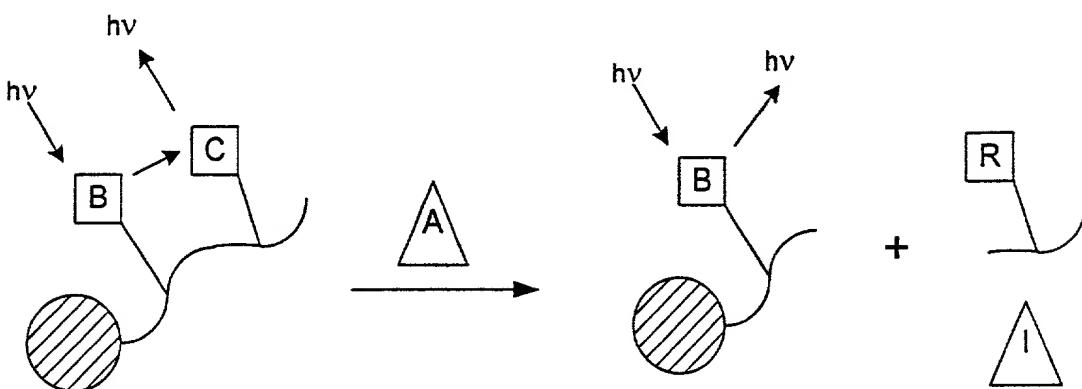


FIG. 62B

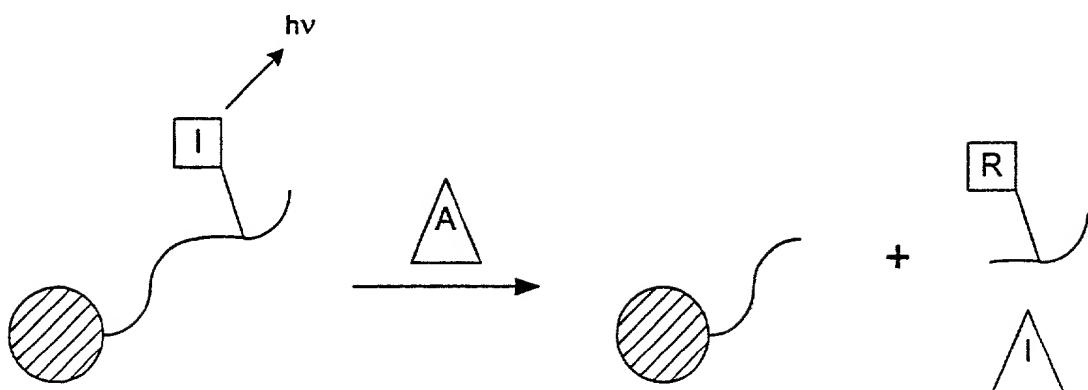


FIG. 62C

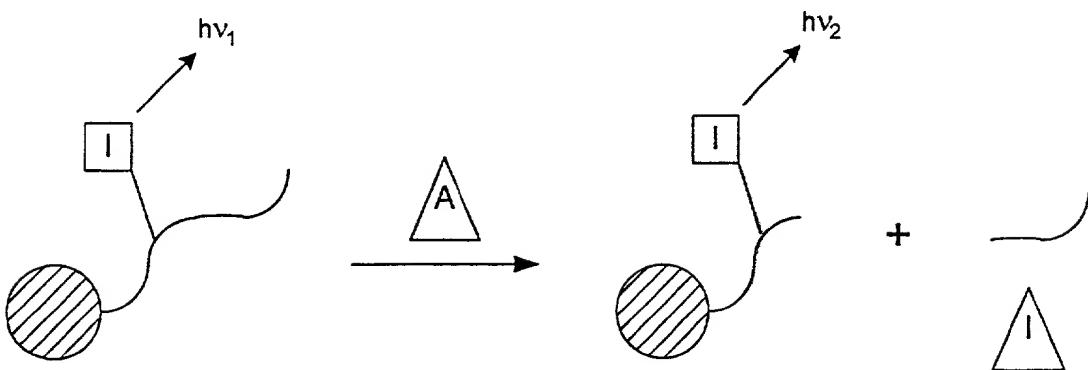


FIG. 62D

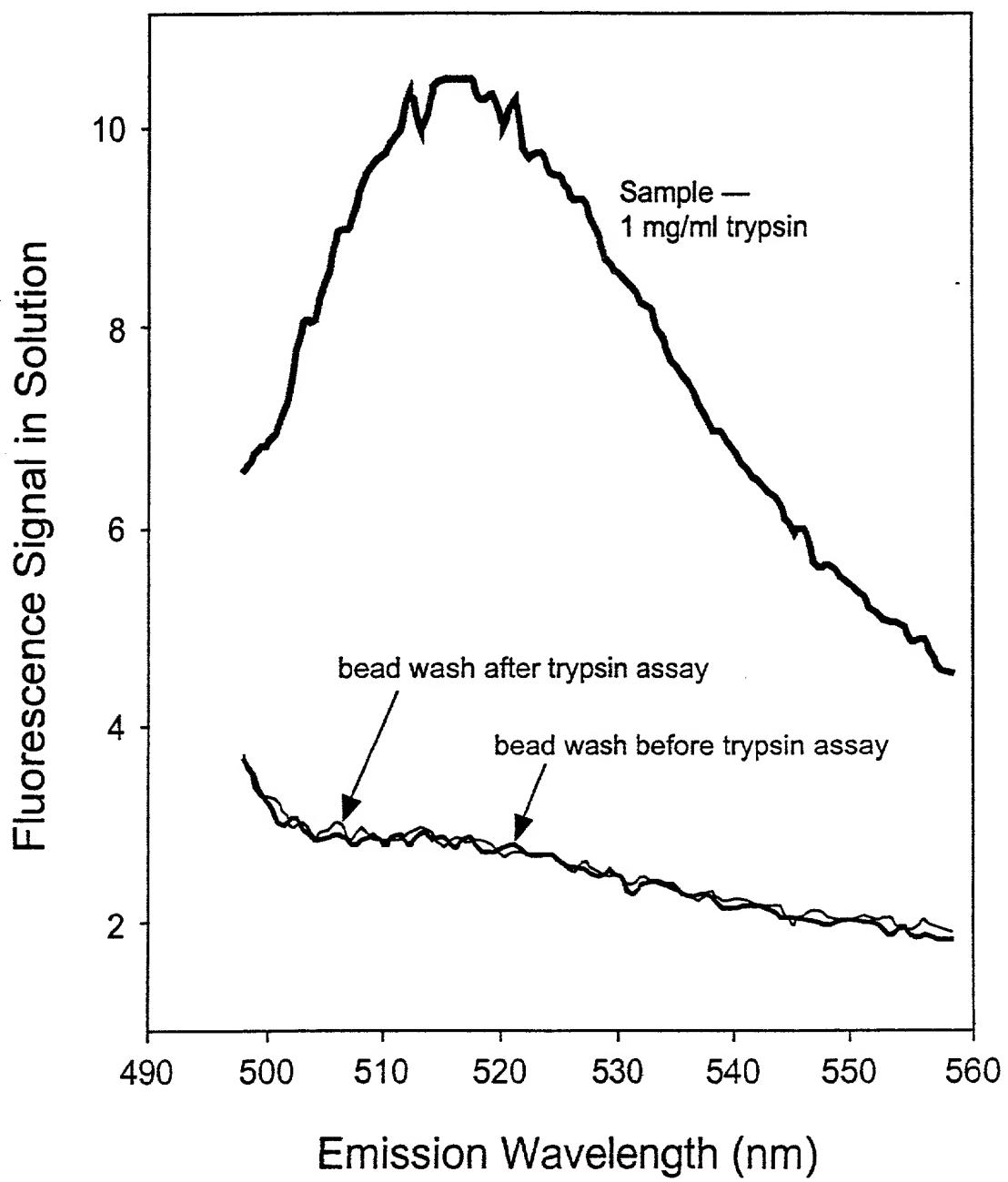


FIG. 63

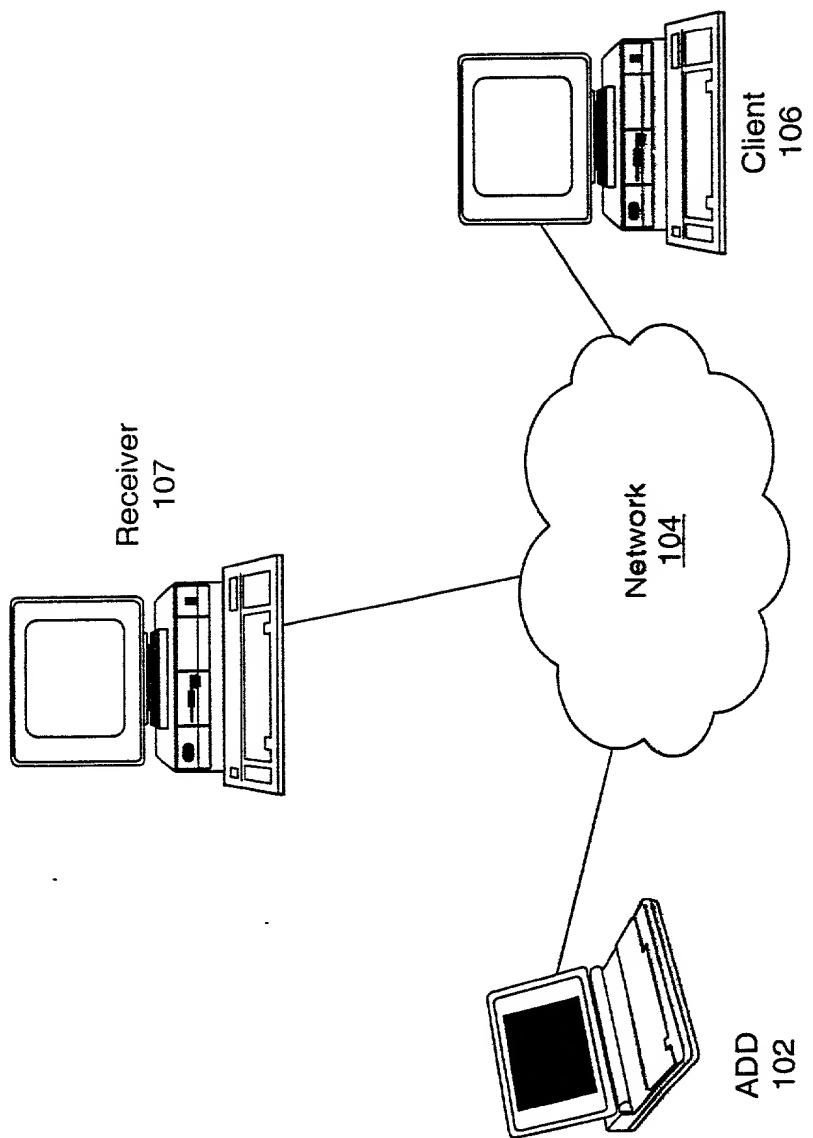


FIG. 64

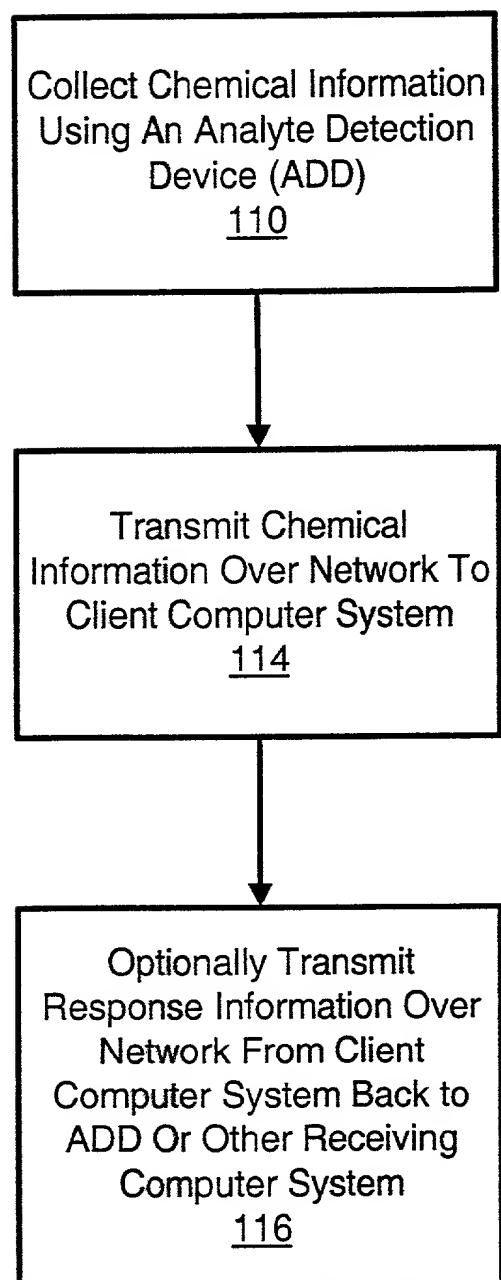


FIG. 56 65

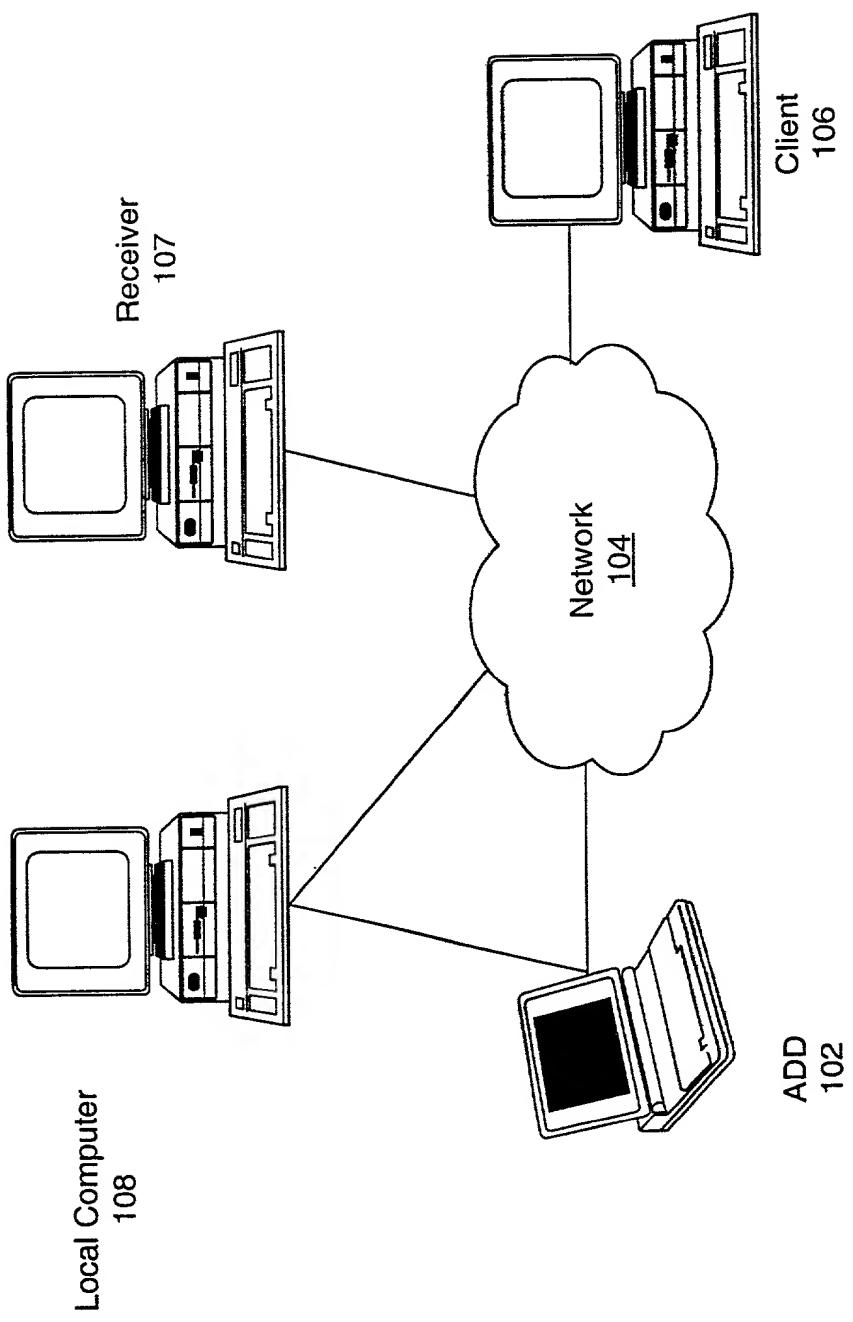


FIG. 66

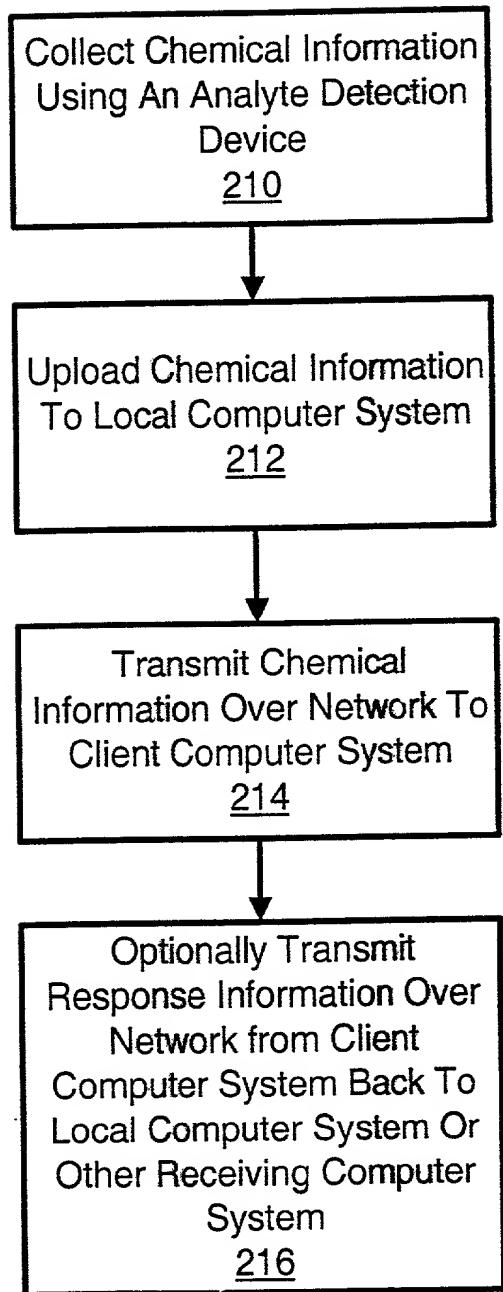


FIG. 67

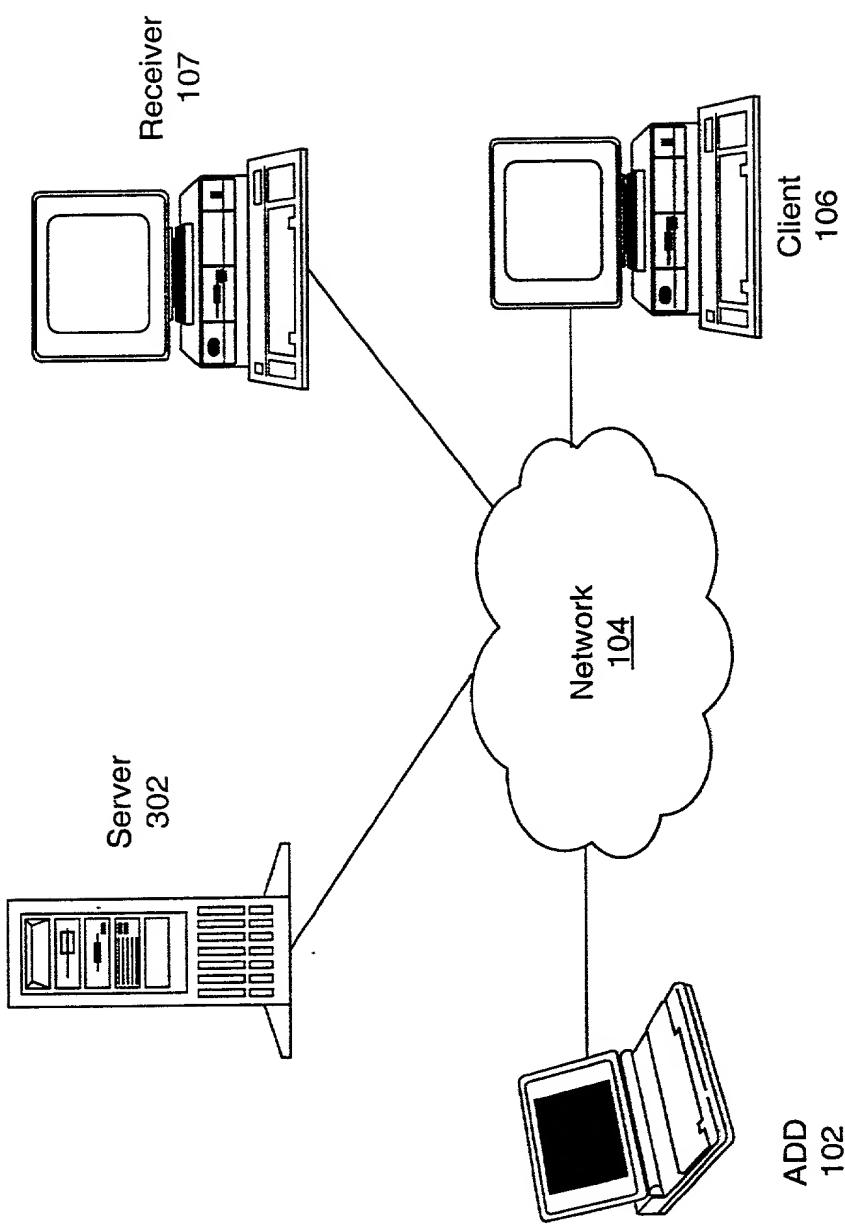


FIG. 68

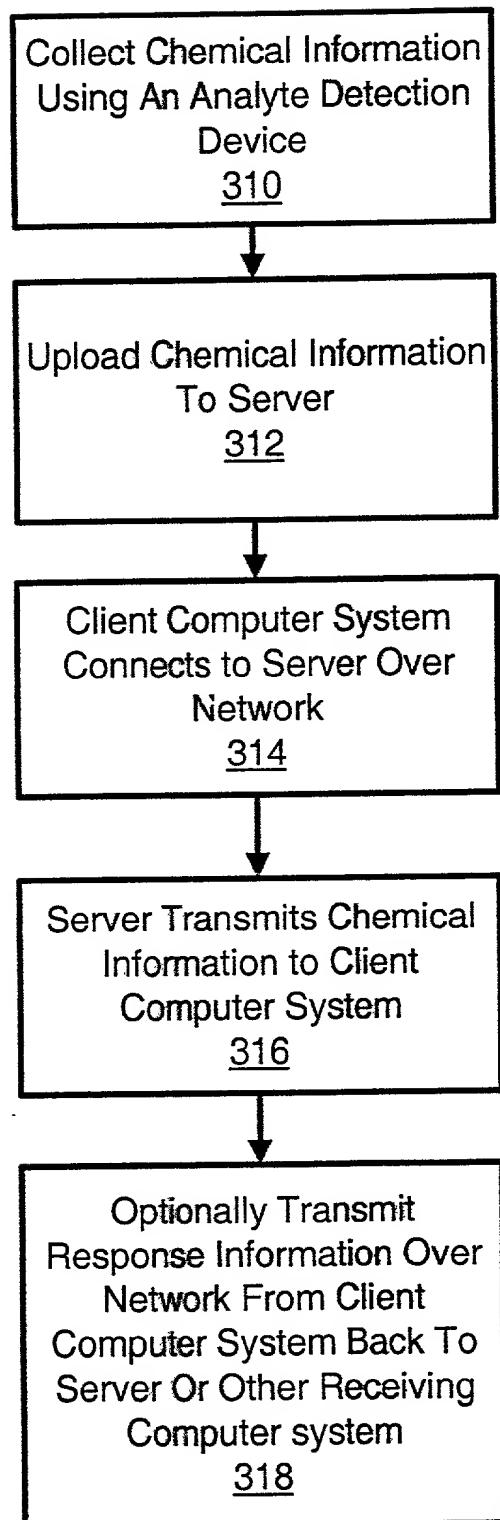


FIG. 69

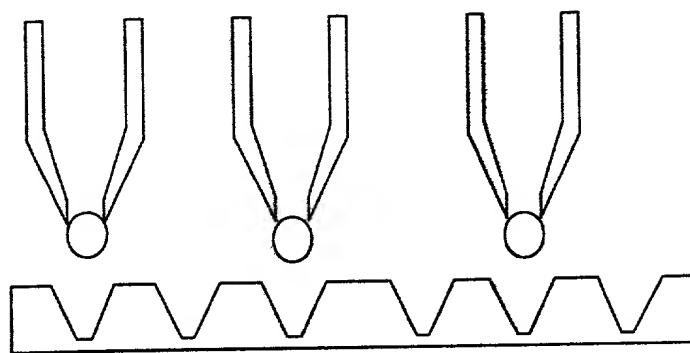


FIG. ~~52~~ 704

(5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

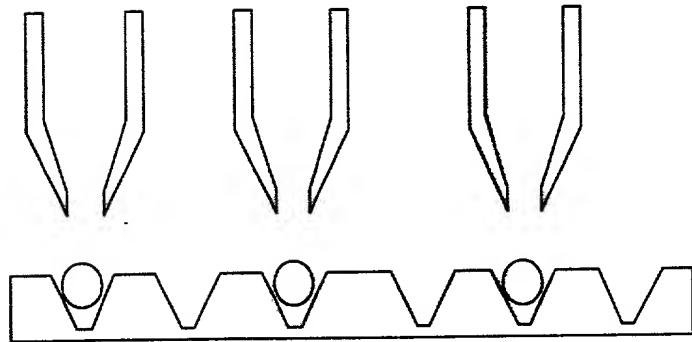


FIG. ~~52~~ 703

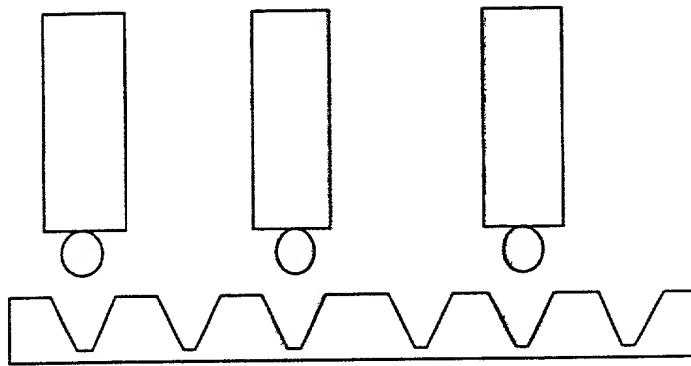


FIG. 5671A

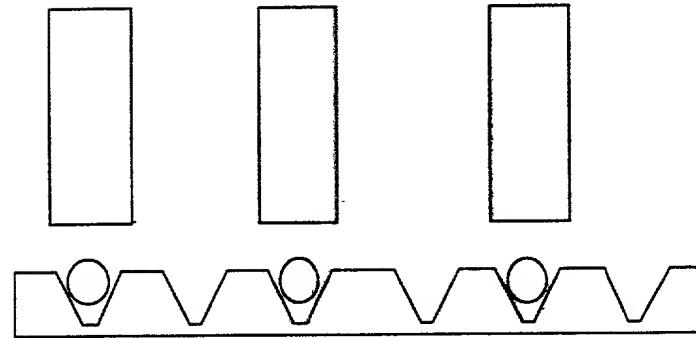


FIG. 5671B

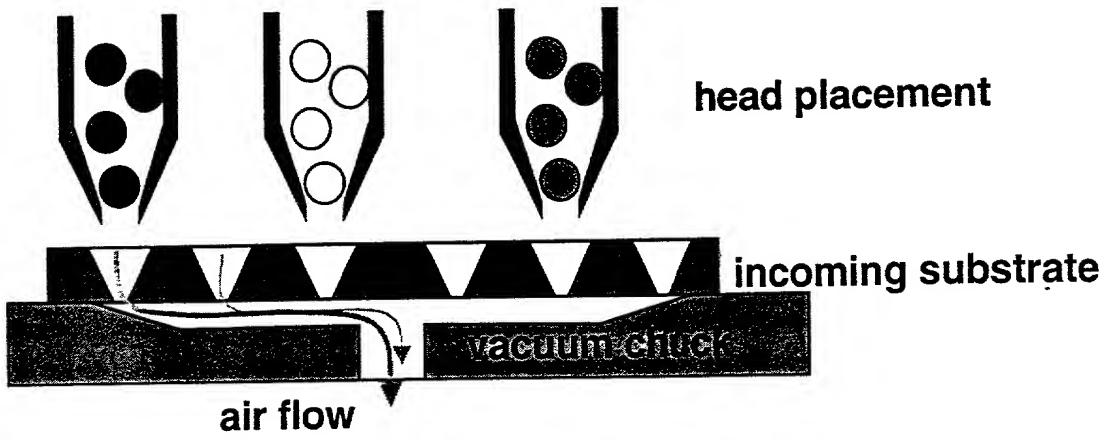


FIG. 72 A

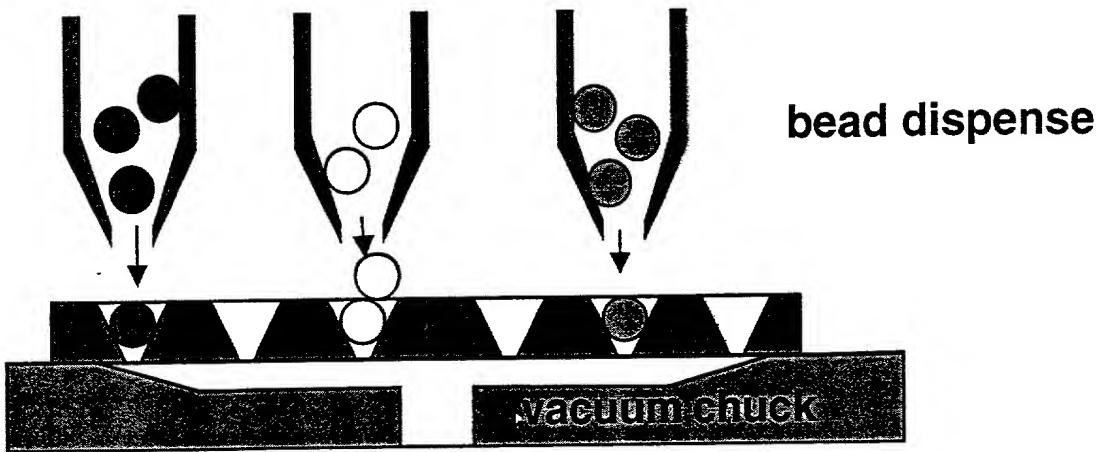


FIG. 72 B

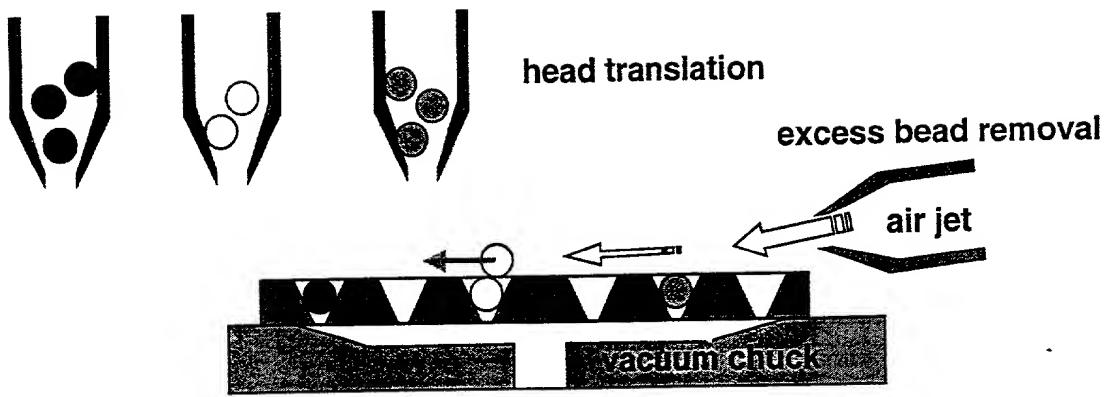


FIG. 592 72C

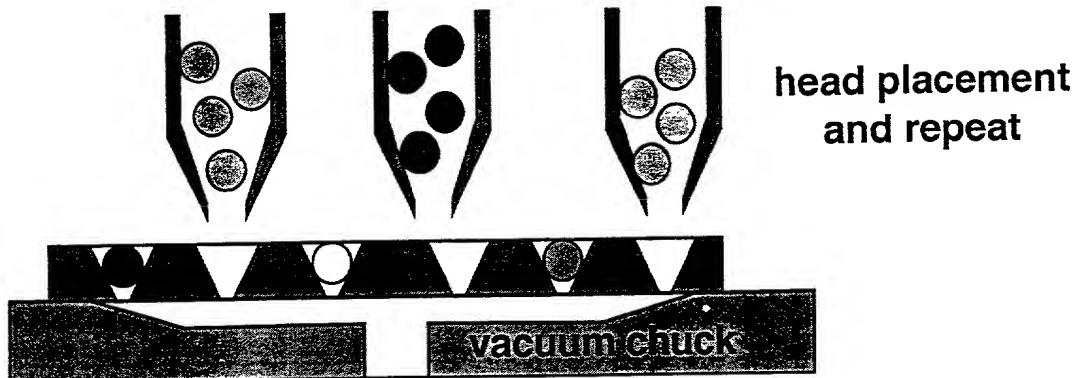


FIG. 592 72D

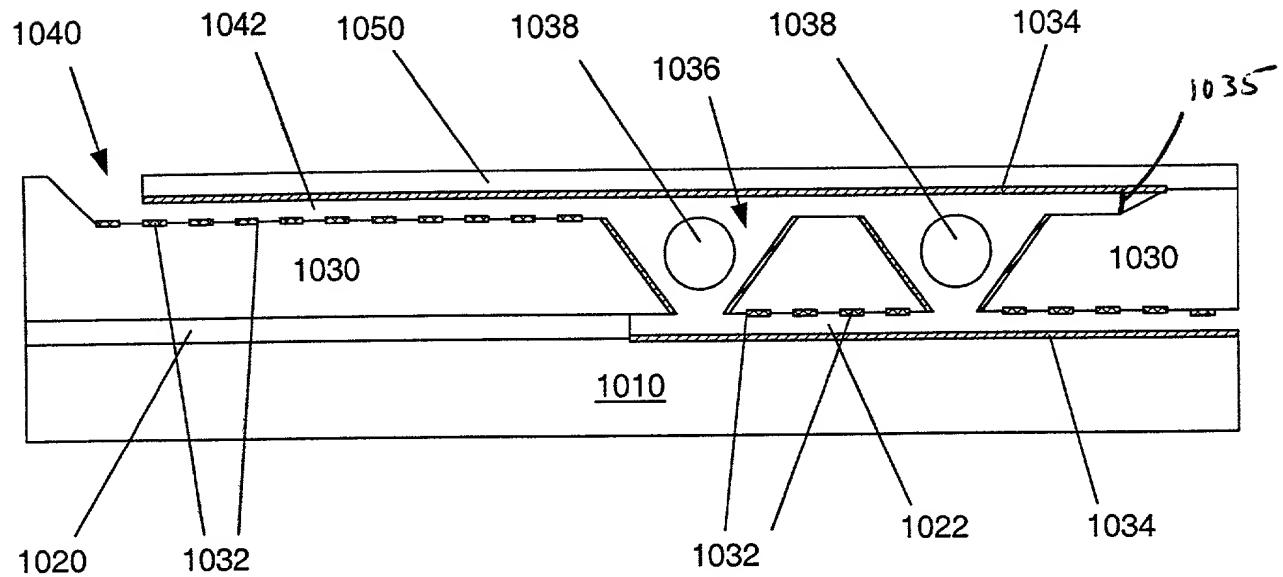


FIG. 73

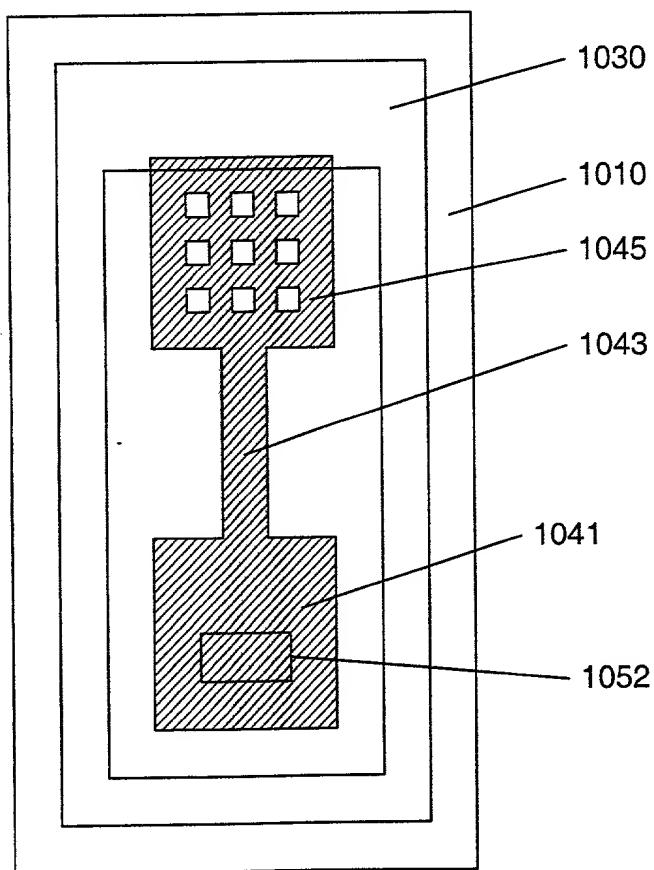


FIG. 74A

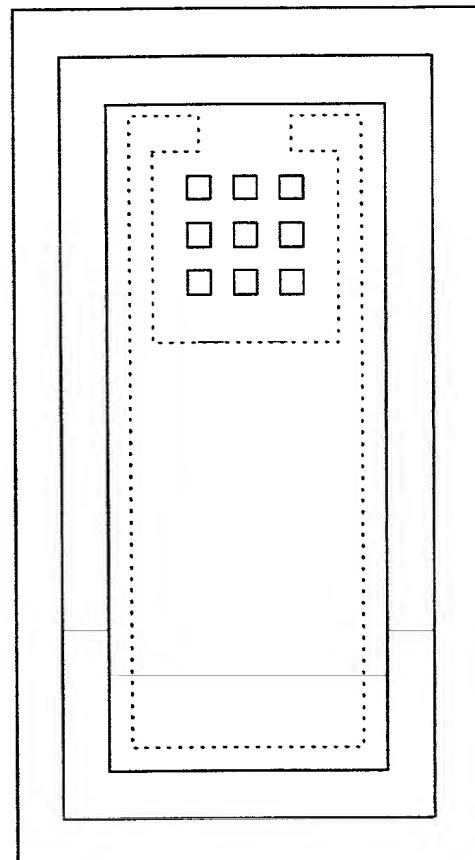


FIG. 74B

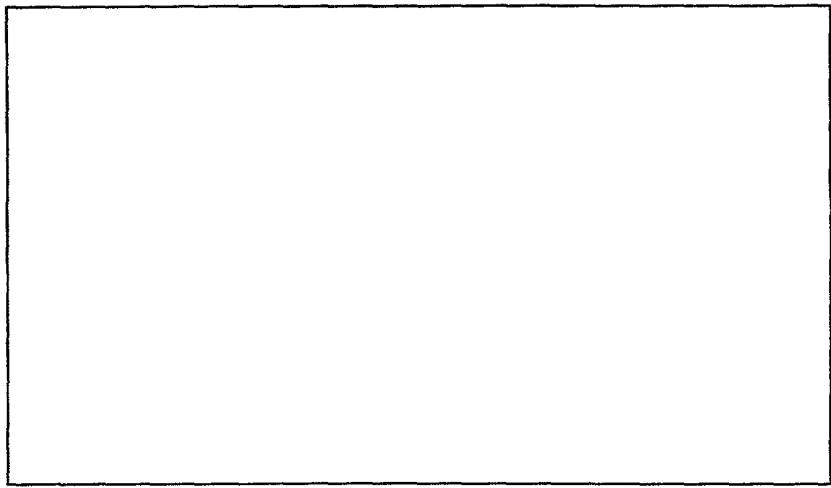


FIG. 5  
75

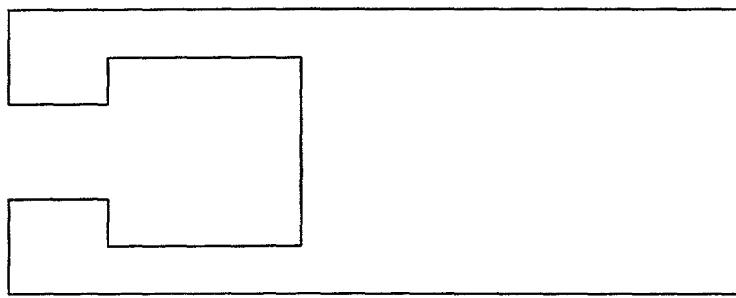


FIG. 5  
75

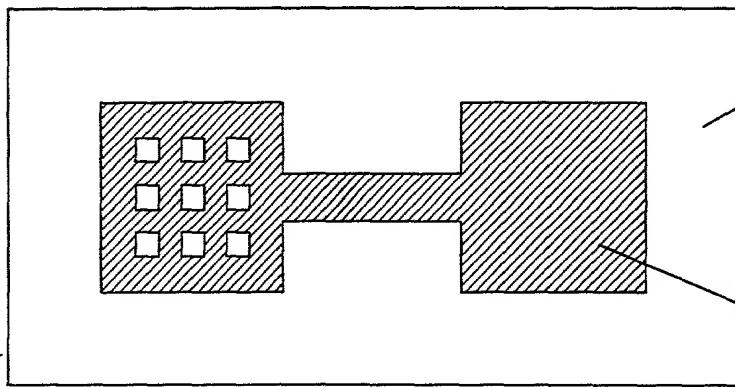


FIG. 5  
75

1033

1031

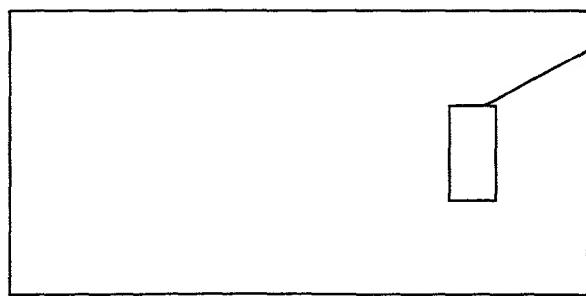


FIG. 5  
75

1052

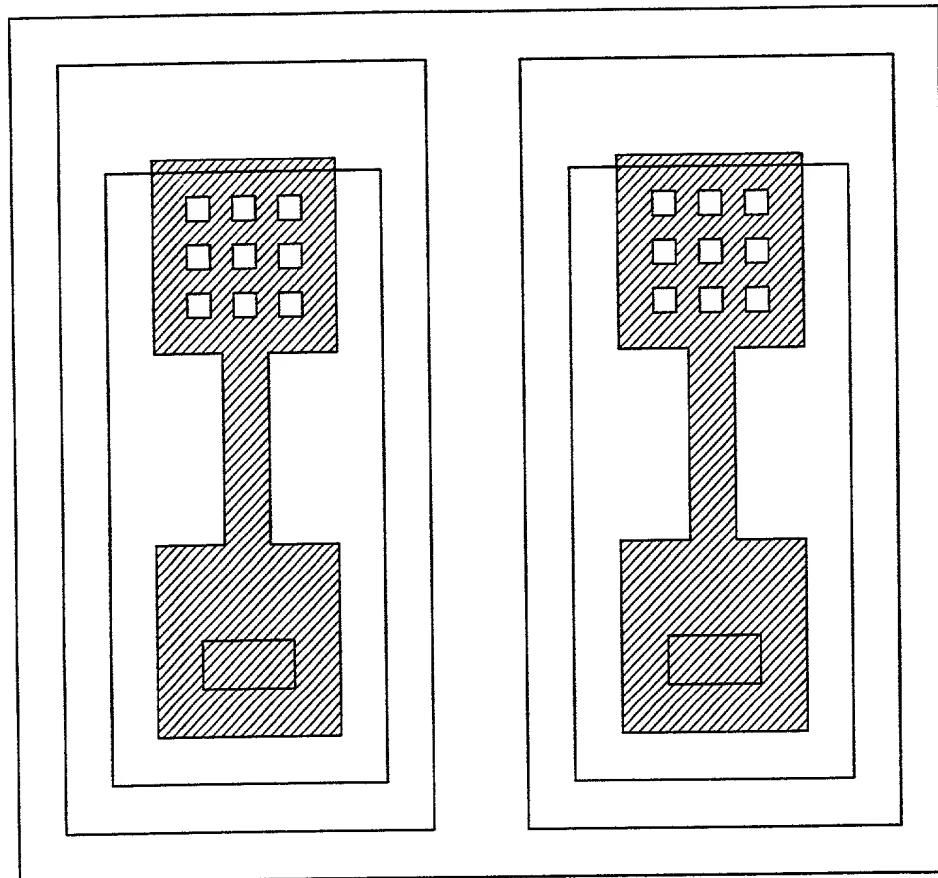
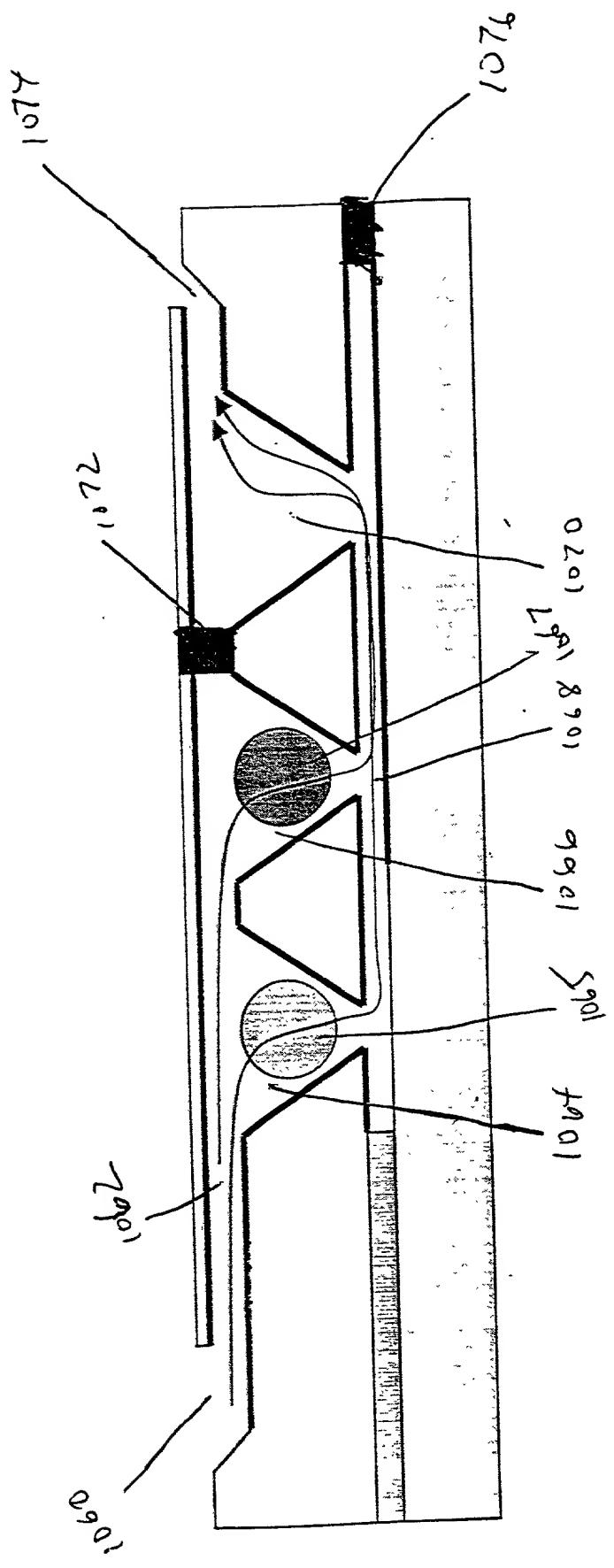


FIG. 76

FIG. 77



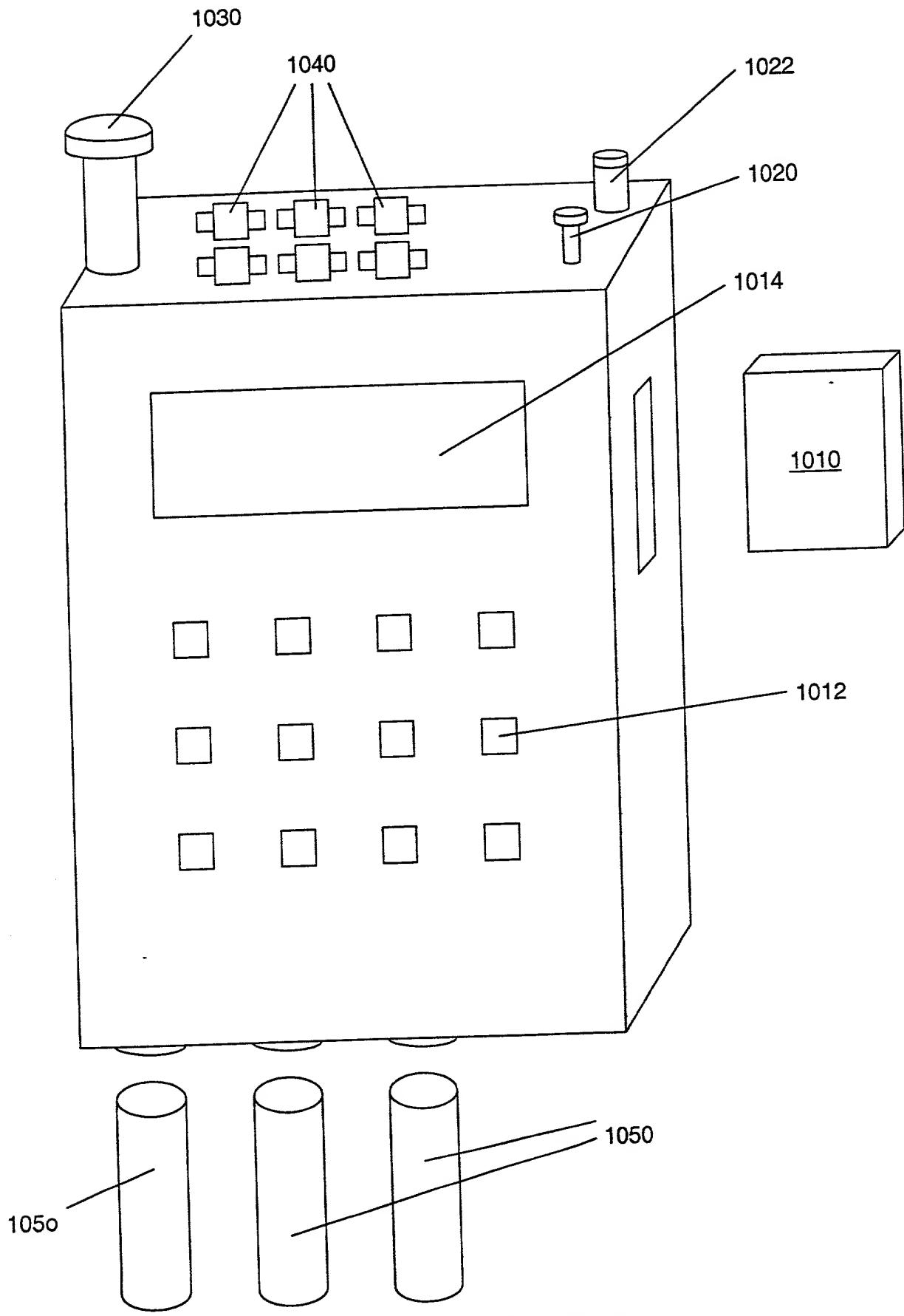


FIG. 78

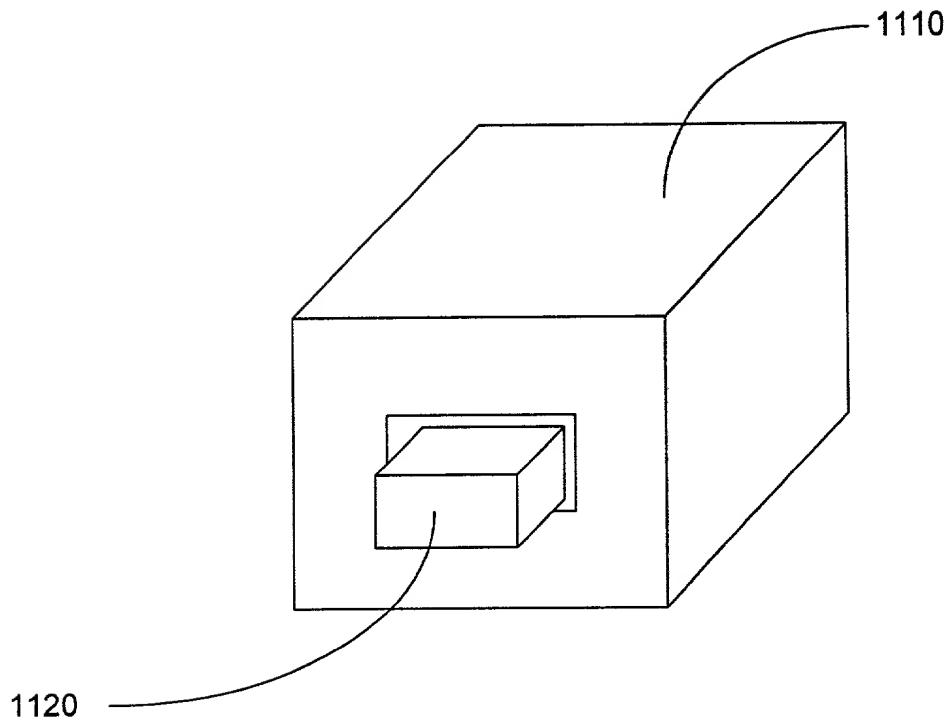


FIG. 79A

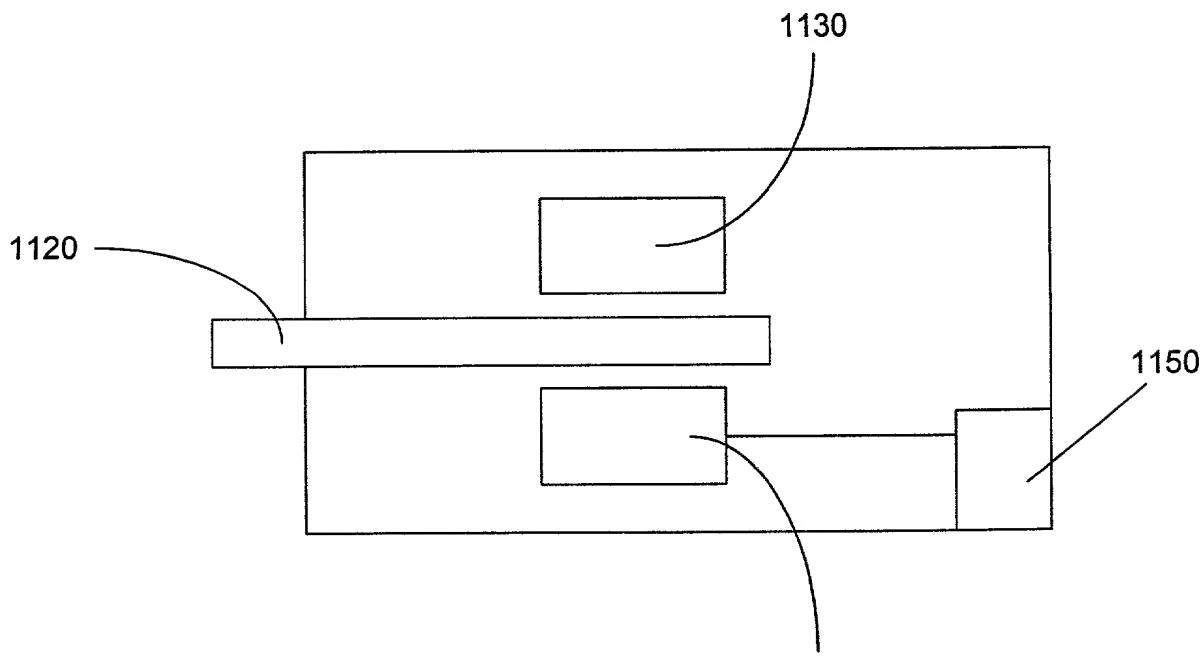
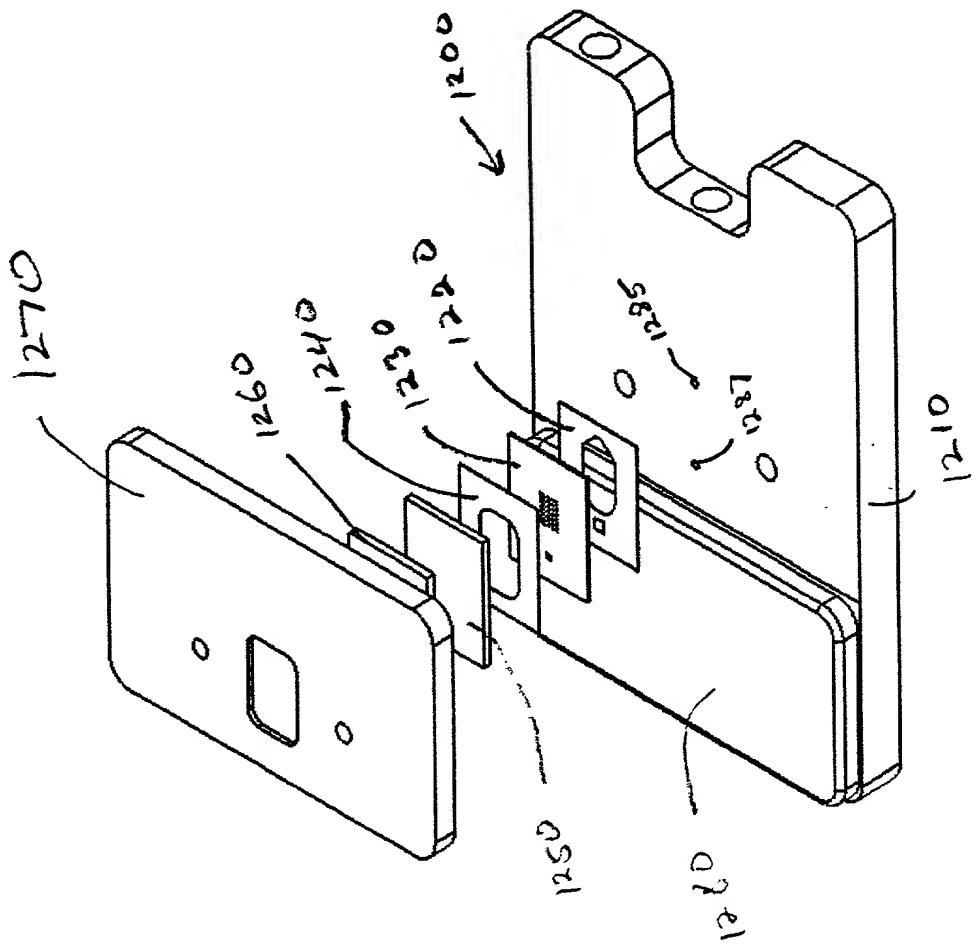
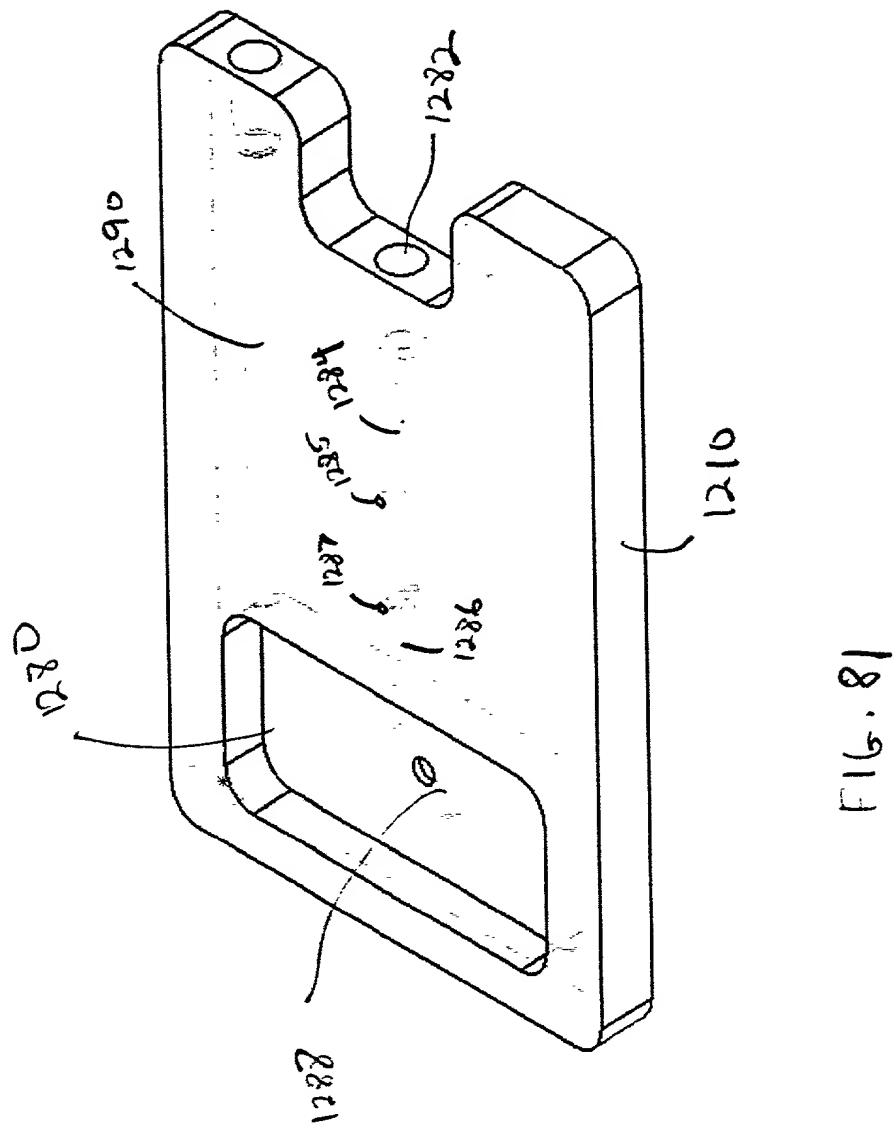
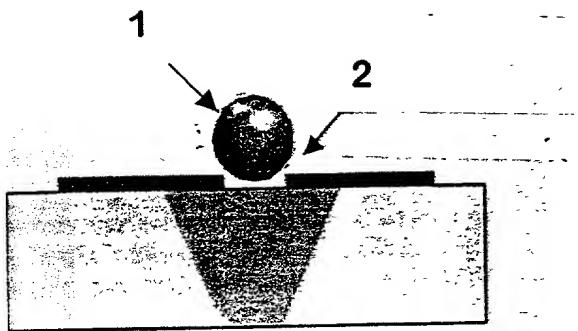


FIG. 79B

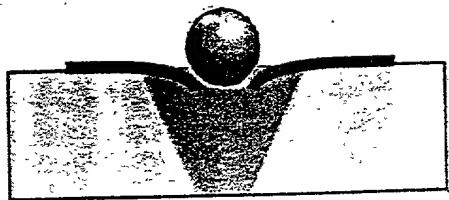


516 80

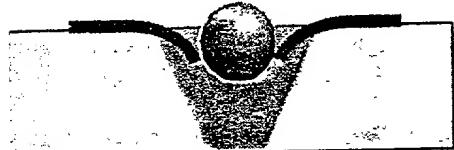




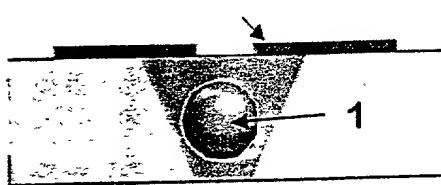
(a)



(b)



(c)



(d)

Figure 182